

Operating manual

Brielmaier motor mower



(Errors and technical alterations excepted)

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1.1 General information and designated use

Congratulation on buying your Brielmaier motor mower!

Many years of development and a continuous exchange with our clients enable us to offer you a mower that sets standards in efficiency and safety.

But despite of all the safety we have thought about when designing and assembling the machine, in the end it is still the operator who defines, how safe his work really is.

Therefor: Please read this manual carefully!

It contains many important hints and tips, to use the **Brielmaier motor mower** safely, proper and faultlessly and prevent hazard or even accidents at work!

The **Brielmaier motor mower** is designed exclusively for the conventional use in agriculture, forestry, cultivation of greens and facilities, municipal use and winter services. Every use beyond that is no designated use.

Designated use also means keeping the required operating, service and maintenance conditions.

The **Brielmaier motor mower** may only be used, maintained or repaired by persons that have the appropriate skills and are informed about the hazard potentials.

We are not responsible for damages or errors that are caused by non-observance of this manual or unauthorized changes of the machine!

Read at least all the safety instructions!







1.2 General safety and accident prevention rules

Basic rule: before each operation check the reliability!

1. Next to the recommendations in this manual always note the general safety and accident prevention regulations!
2. Juveniles under 16 must not operate the mower!
3. When using public roads the relevant regulations and road traffic rules must be observed!
4. Before starting work, familiarize yourself with all the features and operating controls as well as their functions. Ensure that all protective devices are installed properly. During the assignment it is too late!
5. The operator is responsible for third parties in the working area! Make sure that you secure it against access by people (children!) and animals, especially in the immediate vicinity of the machine.
6. The stay in the danger zone of the machine is prohibited!
7. Before performing maintenance and cleaning shut down the mower and remove the ignition key!
8. Never run the engine in confined spaces - hazard of suffocation through the carbon monoxide emissions!
9. Wear close-fitting work clothes, since loose clothing increases the risk of accident. Also wear sturdy, closed shoes with sufficient tread.
10. Caution when dealing with fuel – increased fire risk. Never refill near open flames, sparks or hot engine parts. Never smoke when refueling!
11. Stop engine before refueling and pull out ignition key. Never refill fuel in closed rooms! Use appropriate funnel!
12. To avoid fire hazard, always keep the machine clean!

1.3 Warning informations and signal words

Following signal words are used in the manual to make you aware of danger. Please pass on all safety advice also to other users. Please heed all measures marked with the danger sign to prevent injuries or death.

Signal words/ danger sign	Hazard classification according to international standards
NOTICE	NOTICE indicates a potentially hazardous situation, which - if the warnings and notes are not observed - could result in material damage
	The DANGER SIGN warns about danger of injury
 CAUTION	CAUTION indicates a potentially hazardous situation, which - if the warnings and notes are not observed - could result in minor or moderate injuries
 WARNING	WARNING indicates a potentially hazardous situation, which - if the warnings and notes are not observed - could result in major injuries or death
 DANGER	DANGER indicates a potentially hazardous situation, which - if the warnings and notes are not observed - almost certain lead to major injuries or death . This classification of highest hazard situations does not occur at the Brielmaier motor mower.

1.4 Further safety guidelines before operating the machine

The most important safety guidelines given in this handbook cannot cover all eventualities. Common sense and caution are obviously not built – in features of a motor mower – they must be provided by the person using and maintaining it.

To reduce the risk of accident as much as possible, please heed the following instructions:

- Execute the **first commissioning** only after you have read the operating instructions and familiarised yourself with the control functions
- The first time you use the Brielmaier motor mower, choose a clear and level area of ground
- Damp and rainy conditions increase the danger of slipping and skidding, so take extra care when mowing on slopes and steep inclines and only mow on dry ground that gives you a good grip
- The **Brielmaier Motormäher** is designed **exclusively** for use as a mower or for use with Brielmaier accessories. Any and all misuse can unnecessarily endanger the operator or third parties
- Always only use genuine spare parts of the **Brielmaier Motormäher GmbH**. Only they fulfill the committed technical demands
- **Always** remove the cutter guard **before starting the engine**. When you have finished mowing, always turn off the engine before putting the cutter guard back on. Make sure especially that the cutter guard is fitted during long periods of inactivity (in shed, garage, etc.)
- Regarding the knives please read the safety guidelines of the producer ESM on the pages 30-38!
- The fitted safety equipment such as the burn guard on the exhaust pipe and other safety guards should never be removed. If these fittings become damaged, switch the mower off immediately and arrange a proper repair
- The **Brielmaier motor mower** is designed for the use on slopes. Anyway you must consider a margin for safety, to guarantee the stability of the machine and prevent slipping off. Also look for loose stones! The speed must be adjusted to the ground conditions and it is the responsibility of the operator to choose the right speed to prevent any danger!
- All the controls must engage cleanly, run smoothly and be in good working order
- Note: If unleaded fuel is stored for a long period, it can lose its ability to ignite and may form deposits. It should therefore be stored for no more than three months maximum

Before commissioning always check that

- the machine has enough engine oil and hydraulic oil
- the tank is full
- the knives are sharp
- the swing arm bearings, pivot bolts and knife guide arms on the mushroom-headed bolt area of the knife blades are lubricated

Ear protectors



As the noise level of the 4-cycle engine at full throttle and the cutter exceed 90 dB(A), you are advised to wear ear protectors in line with standard safety guidelines. Please note the detailed information on noise measurement values on page 12.

1.5 Remaining risks

WARNING

Hazard	Potential consequences	Evasive / avoidance actions to be taken
Explosion hazard through ignited petrol	severe burns all over the body and in the face	<ul style="list-style-type: none"> ➔ DO NOT refuel the mower when the motor ist hot ➔ use a suitable funnel to fill up the tank
Suffocation hazard through exhaust fumes	The emission of carbon monoxid from exhaust can lead to smoke poisoning with following symptoms: headache, respiratory distress, nausea, unconsciousness, death	<ul style="list-style-type: none"> ➔ NEVER run the engine in a closed area
Cutting damage hazard at the cutter bar	serious cut injuries or cutting of parts of the body when the cutter bar is running!	<p>When the engine is running</p> <ul style="list-style-type: none"> ➔ NEVER remove the cutter guard ➔ NEVER touch the cutter bar ➔ NEVER walk in front of the cutter ➔ MAKE SURE that nobody is in front of the mower
Risk of injuries through flying parts	While using the mulcher or flail mower parts can be hurled away!	<ul style="list-style-type: none"> ➔ MAKE SURE, that there are no persons in the danger zone ➔ IN CASE OF EMERGENCY switch off the engine immediatly
Overturn of the mower on very steep slopes as well as slipping off	Bruise, contusion, crash at the slope, fractures, death	<ul style="list-style-type: none"> ➔ DO NOT drive at the hillside when it is raining or the underground is wet ➔ ALWAYS use suitable shoes and appropriate clothes ➔ ALWAYS consider the soil condition and the sloping ➔ EXTREME CAUTION when turning ➔ ADVICE observe the instructions at the following pages!

NOTICE

Hazard	Potential consequences	Evasive / avoidance actions to be taken
The machine is not suitable for towing	Drive motors can be broken, because the oil does not then pass through the cooler	<ul style="list-style-type: none"> ➔ DONT tow the maschine by another vehicle over longer distances

1.6 Safety at a slope

Driving at a slope takes always more concentration and attention than driving on level ground!



WARNING Danger of Bruises, contusion, fractures or even death when the mower overturns or crash at the slope, if the following warnings and notes are not observed for driving along the hillside:

1. The recommended values are valid on intact turf and good weather conditions!
2. Topographic conditions can change and cause a hazard in operation!
3. If the slope changes, if the trip leads over a dirt track, stones are in the road or the weather changes, there may be danger of falling on the slopes!
4. The ultimate responsibility always lies with the user! The driver should always „read“ the terrain in front and adjust the speed and direction of drive according to the circumstances!
5. Special care must always be taken when turning on slopes!

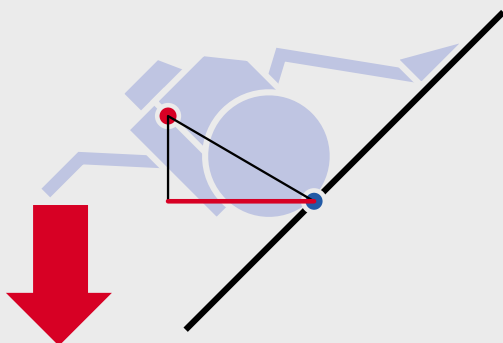
The guidelines listed below were obtained in a number of practice tests and show, which inclination is to be managed safely with which kind of tires under normal conditions.

Due to its special construction the Brielmaier motor mower is notably capable to mow slopes.

Due to the consequent hydraulic design the Brielmaier motor mower comes with a very low center of gravity, which reduces the use of force especially on a slope noticeably.

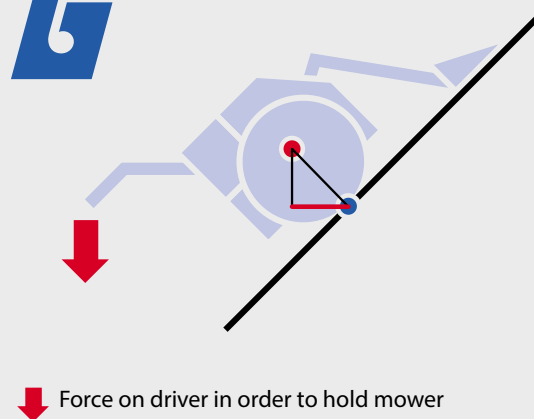
Comparative physical effort:

conventional
motor mower



• Center of gravity • Pivot — Physical leverage

brielmaier
motor mower



Force on driver in order to hold mower

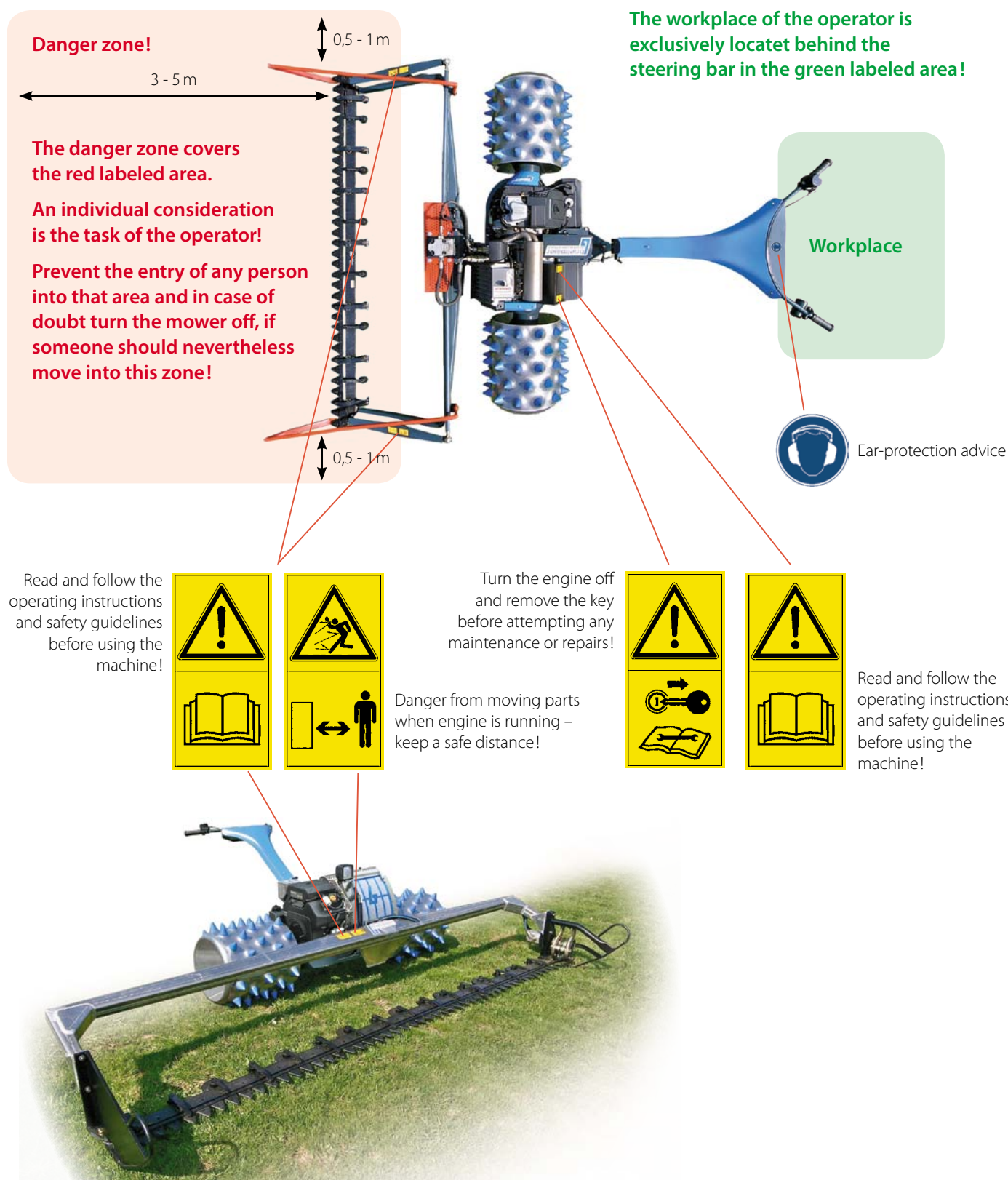
Values for slope capability in % slope, depending on the tires chosen

Simple standard 5.00 x 12	Terra 23x10,50	Twin 5.00 x 12	5.00 x 12 + studded roller wheel	Studded roller wheel high	Studded roller wheel, 4 rows	Studded roller wheel low
35 %	35 %	40 %	50 %	65 %	65 %	70 %
						

2. Safety labels, workspace and danger zone

True safety means knowing and understanding all the safety labels. These indicate the nature and location of the danger and above all the safety measures that need to be taken. Please be vigilant and aware of possible danger(s) at all times.

This machine carries warning symbols (safety labels). The labels and corresponding explanations are set out below in their full illustrations:



Description of device

The **Brielmaier motor mower** is a single-axis broad-gauge mower for use in the most extreme alpine and municipal areas. It is characterised especially by its consistent use of hydraulic technology.

The Brielmaier motor mower is powered by a 4-cycle petrol engine. This drives three gear pumps, which supply the oil engines for the wheel and cutting bar drives via finely tuned valve technology.

This modern valve technology removes the need for any gears and mechanical coupling!

Each wheel is driven by its own hub motor. Cutter bars from 4' to 11'6" of our own production can be connected to the hydraulic couplings of the equipment drive as well as mowers, tedders, rakes, snow blowers and many other attachments from other manufacturers. We are using sturdy double-knife portal cutter bars, system „Bidux“. The cutter bars up to 7'9" are equipped with a swing arm drive, the bars from 8'6" with a lateral eccentric drive.

Our patented self-cleaning studded roller-wheels are the first choice for the use on hills and slopes, on request, we also provide tires in different dimensions.

The handling of the mower during operation is done by push-buttons, levers and a twist grip on the handlebars, which the operator normally does not need to release. **Thus ergonomics and safety are implemented in the highest degree.**

Gas and oil

- All our engines run on standard unleaded petrol
- As engine oil ex-works we use Panolin Motoröl Universal FE 10W40 semi-synthetic
- As hydraulic oil we use the biodegradable Panolin HLP46 synthetic (**do not** blend this!)
- **CAUTION:**
Never blend these oils with other types or qualities! Otherwise there is the danger of foaming!

Manufacturer's address

Brielmaier Motormäher GmbH
Alt Eggenweiler 11
88048 Friedrichshafen / Germany

Phone + 49 (0) 75 46 - 917 615
Fax + 49 (0) 75 46 - 917 616

Mail: info@brielmaier.com
Web: www.brielmaier.com

Type label and approval marks

The type label is situated on the right hand side underneath the steering bar on the main chassis and allows the clear identification of your mower.

Please tell us these data when ordering spare parts or in case of questions or complaints.

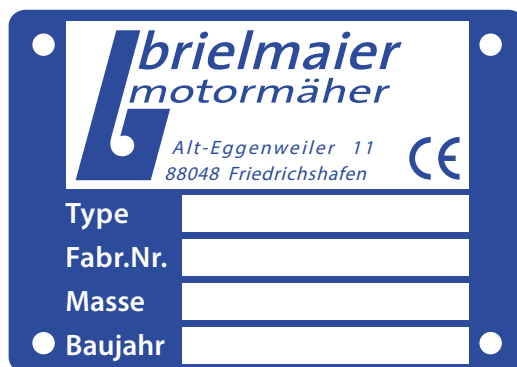
CE-sign (German / European safety sign)

The CE-sign is to be found on the type label.



GS-sign

The mower has been tested by an independent authority and fulfills the conditions of the Product Liability and Product Safety Act (Europe)



BLT Wieselburg

Seal of the Austrian Authority for Agricultural Technology in Wieselburg

Brielmaier Motor Mower 20 kW/27 PS

Type 108.00001.45

Engine type

Kohler Command CH 740

Number of cylinders

2

Power

20 kW (27 hp)

at rpm

3,600 min⁻¹

Cubic capacity

45 in³

Maximum torque

56.4 Nm / 2.200 min⁻¹

Tank capacity/ fuel

2.4 Gallons / unleaded

Motor oil

10W40 (mineral oil)

Speed

0 - 4.5 mph variable

Tank capacity hydraulic oil

2.1 Gallons

Required quality hydraulic oil

biodegradeable Panolin HLP46 synthetisch
(do not blend with other oils, danger of foaming!)



Max. hydraulic pressure

Wheel drive

200 bar

Equipment drive

220 bar (option: variably adjustable)

Tire pressure

5.00 x 12"

0,8 bar

Terra tires

0,5 bar

Weight of base machine

Minimum: with standard tires

490 lbs

Maximum: with steel ext. wheels

586 lbs

Dimensions of base machine

Width min.: with standard tires

3'12"

Width max.: with roller wheels low

6'9"

Lenght (without cutter bar)/ height

6'3" / 3'7"

Cutter bar weights

4'

190 lbs



5'3"

210 lbs



6'7"

230 lbs

7'9"

250 lbs

8'6"

330 lbs



9'10"

345 lbs

11'6"

355 lbs

Tire weights for the complete pair

**Standard
5.00 x 12**

59 lbs



**Terra
23x10,50**

71 lbs



**Zwilling
5.00 x 12**

130 lbs



**+ studded
roller-wheels**

154 lbs



**Studded roller-
wheels high**

73 lbs



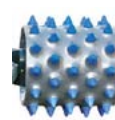
**Studded roller-
wheel, 4-row**

77 lbs



**Studded roller-
wheels low**

88 lbs



5.1 Vibration measurement at the handles

By standard DIN EN 12733 we are obligated to measure the vibrations at the handles and mention them in this manual.

The DLG text center in 64823 Groß-Umstadt, Germany has conducted the necessary tests for the mower 20kW / 27 hp to the audit number 2007-566 on 10-02-2007.

Results if the test report for the mower 20 kW / 27 hp

I. Description of the mower

1. Producer and applicant:	Brielmaier Motormäher GmbH
2. Type:	108.00001.45
2.1 Nominal power:	27 hp, Kohler Command Pro 27
2.2 Nominal rotation speed:	3.600 ⁻¹
3. Serial number:	4007304
4. Knives / Cutter bar with upper and lower knives:	37 blades each, width 8'6"
5. Coating on the handles:	Rubber grips
6. Tire pressure:	0,7 bar

II. Measurement results – The measurement was performed according to DIN EN 12733:2001

1. Instruments used:	
1.1 Acceleration detector:	PCB, Type M354C02 SN 1547, M354C02 SN 1762 with integrated charge amplifier, weight: 0.011 lbs
1.2 Frequency weighting filter:	DLG self-constructed, filter characteristics comply with ISO 8041
1.3 Tachometer	Laser Tacho Type: Mayer + Wonisch, serial number 619596
2. Measurement conditions:	Flooring according to Annex C.4.1.2.4 (rubber mats), test section 26 ft., measurement time 16 s

III. Results table

Travel speed:						2 ft./s / 2. gear		Cutter stroke rate:						450 min ⁻¹	
Vibration measurement of oscillating tools, weighted acceleration in ft./s ² (values should be less than 16.5)															
Left handle							Right handle								
1	2	3	4	5	Average		1	2	3	4	5	Average			
12.8	11.2	12.1	10.8	12.8	11.8		10.8	10.8	10.8	10.8	11.2	10.8			

5.2 Noise values of the Brielmaier motor mower

measured at the operators' ear by test committee on 06-25-2009

Brielmaier Type 1080000145 (27 hp) mit aluminum cutter bar 11'6" (and other aluminum types / widths)		
	Engine speed	Noise value (equivalent continuous sound pressure level L _{Aeg})
Speed level 1	2.200 min ⁻¹	81,5 dB(A), no ear protector required *
Speed level 2	2.200 min ⁻¹	82,5 dB(A), no ear protector required *
Speed level 3	2.550 min ⁻¹	84,8 dB(A), no ear protector required *
Nominal speed	2.900 min ⁻¹	86,5 dB(A), ear protector may be necessary
Full throttle, use of mulcher		> 90 dB(A), ear protector is required



Starting from an exposure of 85 dB (A) ear protectors for employees must be provided free of charge, from 90 dB (A) the use of them is mandatory binding. We recommend that you always wear hearing protection, unless you can rule out over the entire operation, to come above the critical values.

EU Declaration of Conformity

In accordance with EU Guideline 98 / 37 EG and EMV-Guideline 2005 / 108 EWG

The manufacturer

Brielmaier Motormäher GmbH
Alt Eggenweiler 11
88048 Friedrichshafen

represented by Martin Brielmaier, CEO, address as above, authorized to compile the technical documents and to issue this declaration of conformity,

declares as his sole responsibility that the products

Brielmaier Motor Mower Type 108.00001.45 (20 kW / 27 hp) built from may, the 1st 2008 on

to which this declaration relates conform to the relevant standard safety and health regulations of EU Guideline 2006/42/EG as well as to the standards EN ISO 12100-1/-2, EN 294, EN 349, EN 982, EN 60204-1, EN14121-1 and EN 1553.

Correct implementation of the safety and health requirements cited in the EU Guidelines has been ensured by the consultation of the following norms and technical specifications: DIN EN 4254-1 and DIN EN 12733.

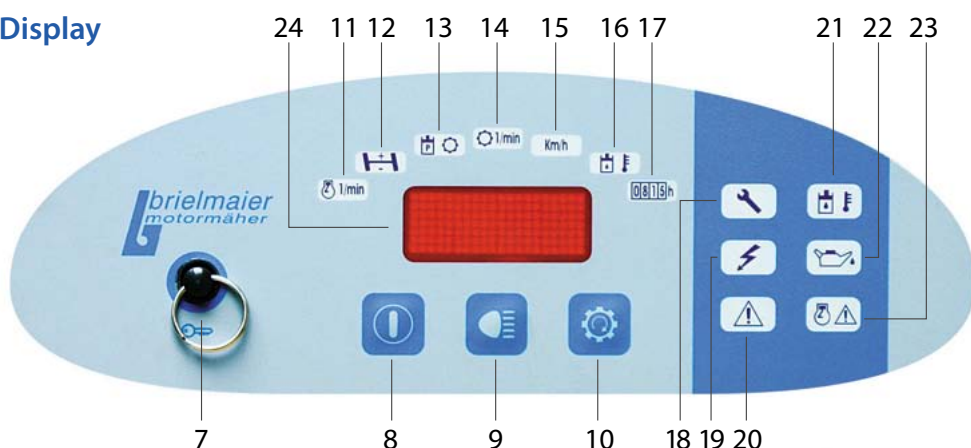
Friedrichshafen, September, the 1st 2009



Business management, Martin Brielmaier



Cockpit / Display



Left hand



Right hand



Double function!

For **all buttons** (2 - 4 and 27 - 29) applies:
pressing shortly (less than 0,3 s) causes an **other**
function than **pressing longer** (more than 0,3 s)!

All controls are ergonomically positioned conveniently close to your grip, so that using the mower is physically effortless and effortlessly easy.

7.1 Controls left hand

- 1 Handle for clutch and brake functions** for gentle starting and stopping, as well as smooth adjustment of speed in both travel directions – reverse / forward – irrespectively of the engine revolutions and pre-selected speed level. When this lever is operated, the wheels brake simultaneously, the mower is force controlled in all gear positions and cannot roll away in any circumstances (100% secure).



When the machine is stopped, the wheels brake to a standstill first (lever position B). When the clutch handle is pulled further to position C, the cutter disengages.

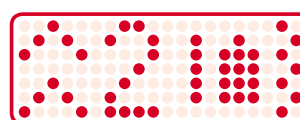
When moving off, releasing the clutch lever switches the cutter on first and the mower then moves off.

2 Button changing direction of travel forward/reverse

If this button is pressed, the mower will brake slowly, change direction of travel and accelerate to the previous speed.

On pressing shortly, the change of direction is permanent. On pressing longer (> 0.3 s) the change of direction is as long as the button is held.

The direction of travel selected is displayed as an arrow symbol on the left-hand side of the central display (24):



Driving forward



Driving backward

Left hand



3 Button increasing speed level and continuously regulating speed

A single, short press of this button (< 0.3 s) sets the speed one level higher (level 1 to 3). If the button is held down continuously, the speed will increase continuously (micro-adjustment of the speed), but only up to the amount that it has been reduced previously, as described in point 4.

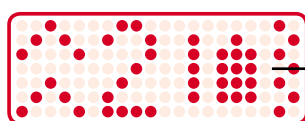
Notice: On the first selection the speed is adjusted to maximum = 100% within each speed level and can **not** be raised from this position!

The following section 4 describes how the driving speed can be reduced with button 4. Then, the speed can be increased again with button 3, reaching a maximum of up to 100% again.

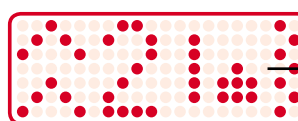
4 Button reducing speed level and continuously regulating speed

A single, short press of this button 4 (< 0.3 s) sets the speed one level lower (level 1 to 3). If the button is held down continuously, the speed will decrease continuously (micro-adjustment of the speed).

All values which have been set this way are stored until the mower is shut off. Please also read the information about the memory-function on page 19. Reducing the speed is shown on the display (24) this way:



maximum speed



reduced speed

The speed can also be regulated by turning the throttle (25). Please see also the information on pages 16 and 17!

5 Emergency stop switch

Safety features !

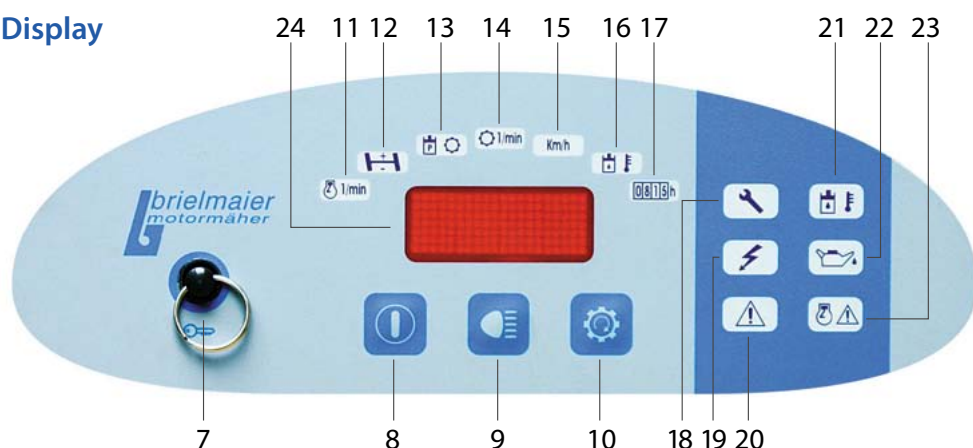
Safety features must never be removed or disabled by changes!

To stop the **Brielmaier Motor Mower** in emergency immediately and to avoid danger the **Brielmaier motor mower** is equipped with a mechanical **emergency stop switch (button 5)**.

To run the machine **the emergency stop switch must be held**. The warning LED (20) goes out then.

As soon as neither handle is held, the machine disengages within one second while the engine continues to run. The warning LED „Emergency stop switch active“ (20) starts to glow to indicate this.

Cockpit / Display

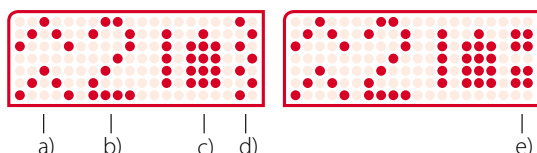


7.2 Ignition/ Button

- 7 Ignition key
- 8 „Start“ button and „Shut down“
- 9 Button „Light on / off“ (optional)
- 10 Button „Cutter on / off“

7.3 LED display:

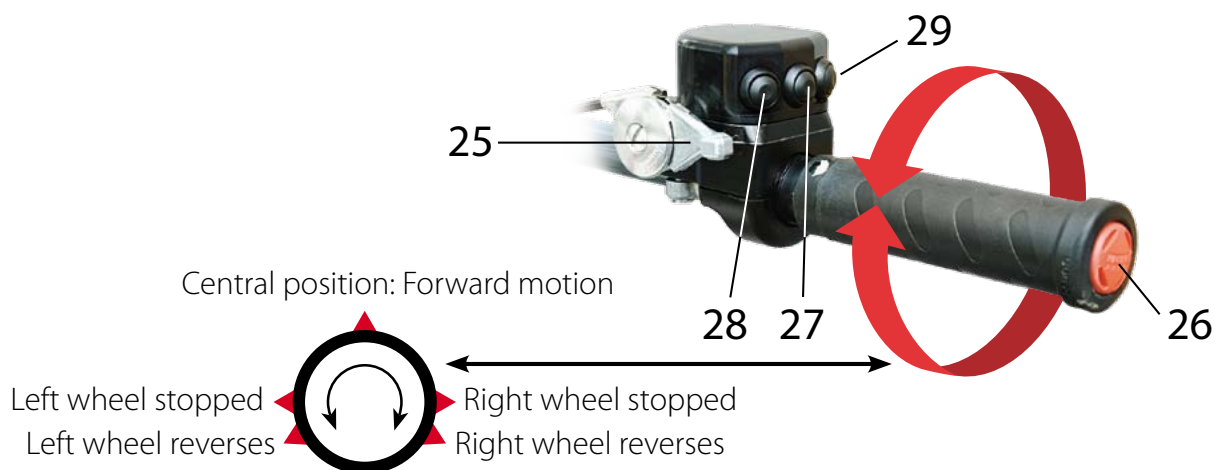
- 11 Engine revolution
- 12 Trim
- 13 Oil pressure of the equipment drive (optional)
- 14 Amount of oil of the equipment drive (optional)
- 15 Speed (not yet activated)
- 16 Hydraulic oil temperature
- 17 Running hours
- 18 Service interval (not yet activated)
- 19 Ignition on
- 20 Emergency stop switch active
Glow, if both handlebars and the emergency stop switch are released. Detailed description on page 15!
- 21 Hydraulic oil temperature too high
Glow constantly at 90° C and above, flashes at 105° C and above.
Stop working and wait until the hydraulic oil cools down, check the fuse of the fan! See also the information on pages 44 und 46!
- 22 Oil pressure too low
In this case the machine should shut down itself and the LED indicates a probable loss of oil. If the engine does not shut down itself, immediately stop, shut down the machine and check the oil level!
- 23 Not yet in use
- 24 LED central display



- a) Direction of travel forward/ reverse
Detailed description on page 14!
- b) Selected speed level – to select a speed level
Detailed description on page 15!
- c) Micro-adjustment of the chosen speed level Detailed description on page 15!
- d) Equipment drive operating, pressing button (10) shortly = turning on directly
- e) Equipment drive active with delay

Continuously pressing button (10), until this symbol appears = increase of current over about 6 seconds. Combined with a proportional valve (pressure or amount of oil), this offers smooth, delayed turning on of the device. See also the information on page 26!

7.4 Right hand settings



25 Throttle

26 Turnable steering handle

The central position of the handle sets forward motion. When the handle is turned left/right, the mower turns left/right accordingly and the relevant wheel simultaneously brakes. Reverse is operated in exactly the same way (no need to rethink). When the handle is turned as far as it will go (see diagram), the braked wheel reverses, enabling the machine to turn on the spot. This function is only available on speed levels 1 und 2 and is less effective at speed level 2

27 Menu scroll button

This button allows you to select and scroll through the menus from 11 to 17.

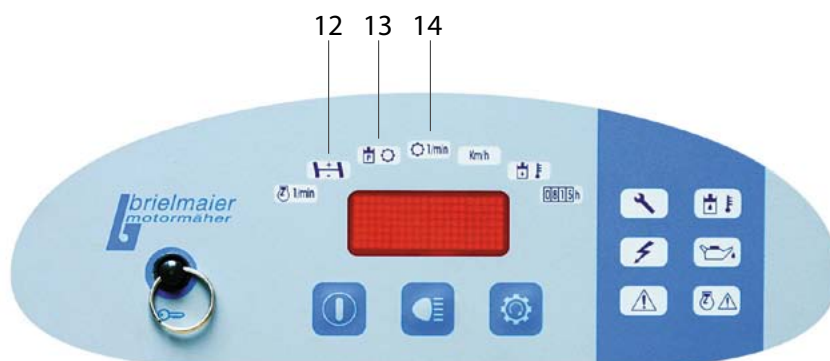
When pressed longer than 0.3 seconds and then released, you reach the „settings“ menu. With each short press (< about 0.3 s) you can browse the menu items. With another long press you leave the settings menu after releasing the button and switch back to the standard display.

28 (-) button

This button **reduces** the values entered in menus 12, 13, 14

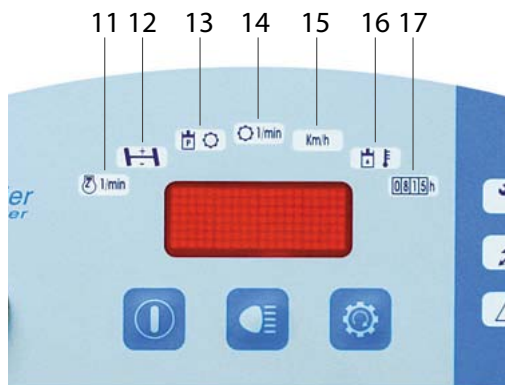
29 (+) button

This button **increases** the values entered in menus 12, 13, 14



Cockpit / Display

Rechte Hand



7.5 LED central display (24) and menu items 11 to 17 in detail

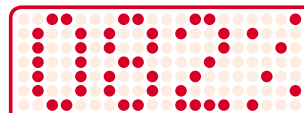
13 Oil pressure of the equipment drive

When button 27 is longer pressed (> 0.3 s) and released, you reach the settings menu. If done for the first time, the display changes to the menu item **oil pressure of the equipment drive**. The LED 13 is showing that.

The display shows the value set for the proportional pressure relief valve (standard = 100%)



standard value



reduced value (example)

- This value can be adjusted by pressing buttons 28 (–) and 29 (+) as appropriate.
- If buttons 28 and 29 are pressed simultaneously, the value is reset to 100%.
- The proportional pressure relief valve is an optional feature. If not installed, you can change the displayed value, but without any effect. The machine is prepared for an upgrade of the valve.

A short press of button 27 switches to the next menu item

14 Equipment drive speed

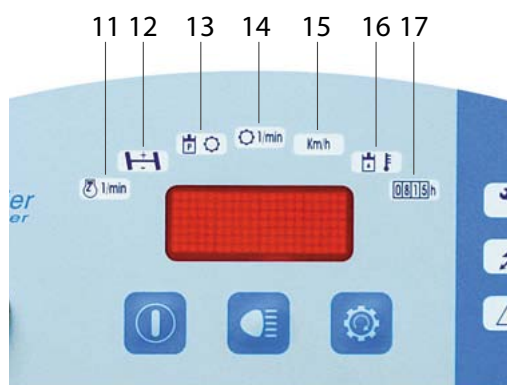
Mode of setting values and display are exactly the same as for the previous menu item.

15 Speed (in kph) is not yet active and is currently skipped..

16 Hydraulic oil temperature



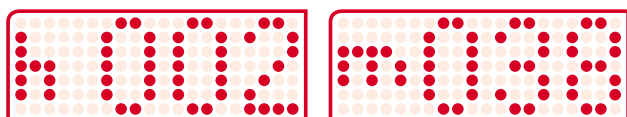
Cockpit / Display



Right hand



17 Number of running hours (h) and minutes (m) alternately:

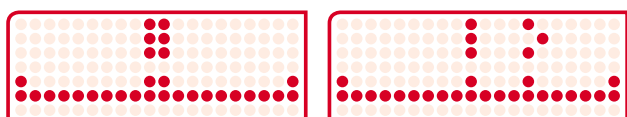


11 Engine speed through the next short press of button 27



12 Trim status

With the trim you can set an individual bending radius to minimize corrections at the steering handle. The trim is adjusted in 100 finely graduated steps to the left or right. When buttons 27 and 28 are held down, the trim is adjusted by about 10 steps per second. When buttons 28 and 29 are pressed simultaneously the value is reset to zero/centre.



start value

trim to the right

If the trim is set to right, by pressing both the „centre“ (27) and „left“ (28) buttons it is possible to mirror the trim value on the left and vice versa.

left hand



Leaving the settings menu: Every other short press of button 27 browses the menu in the mentioned order. **To leave the settings menu** press button 27 longer than 0.3 seconds and release, thereupon the standard display appears.

When entering the settings menu again with a longer press on button 27 **the same menu item will be displayed**, which has been set while leaving the menu.

Fast access to the trim: By longer pressing (> 0.3 s) of button 28 or 29 the mower will start immediately, to regulate the trim into the respective direction.

Afterwards you can browse or leave the menu with button 27 as described above.

Memory function for ALL settings:



When the mower is turned off, for example to have a little break, **ALL values of the settings menu items are stored (i. e. the micro-adjustment of the speed in all three speed levels, the trim, the oil pressure and amount of oil of the equipment drive).**

After restarting the mower you can reactivate all these values by pressing the buttons 2 and 4 simultaneously for more than 0.3 seconds and releasing them. The LED for the menu item „driving speed“ (15) shortly flashes to indicate, that the values have been read out of the memory.

8. Directions for loading and securing the mower for transport

Ensure that the towing capacity of towing vehicle and maximum laden weight of the trailer are adequate !
While driving to the place of action always take care of the relevant safety guidelines and traffic regulations!

8.1 Loading ramps



WARNING

Hazard	the mower may slip off
Potential consequences	Injuries when the machine falls on the user
Evasive/ avoidance actions to be taken	Appropriate loading ramps with the required load-bearing capacity! Secure the loading ramps firmly to prevent them from slipping backwards!

8.2 Loading direction

Depending on the width of cutter bar and trailer you can either load the mower lengthwise or crosswise



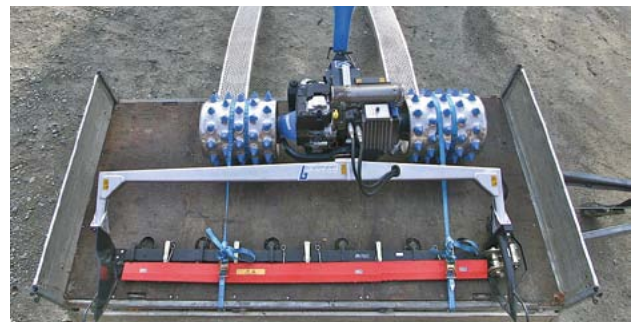
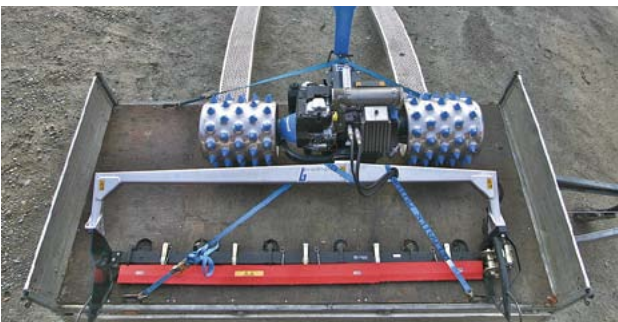
Mower loaded crosswise



Mower loaded lengthwise

8.3 Lashing of the mower

Always make sure the mower is firmly and secure lashed! Look at the examples:



WARNING

Hazard	Potential consequences	Evasive / avoidance actions to be taken
Mower can fall from the trailer	Property damage and bodily injury of the passengers in the vehicle behind	⚠ NEVER start without making sure that ALL belts are tighten fast!

8. Directions for loading and securing the mower for transport

8.4 Lifting eye

The **Brielmaier motor mower** is equipped with two lifting eyes. One lifting eye is located at the fixation peg, the other is attached to the frame close to the attachment of the steering bar.

The lifting eyes can be used to lash the mower to both sides or to load the mower with a crane



Lifting eye on the fixation peg



Lifting eye on the frame

8.5 Cutter bars mounted lengthwise



i Tipp: The wide cutter bars up to 11'6" can be mounted lengthwise for transport, as pictured to the right. You need an additional release coupling, which can be ordered and fixed optionally

9.1 Preparation:

Before commissioning always check that

- the machine has enough engine oil and hydraulic oil
- the tank is full
- the knives are sharp
- the swing arm bearings, pivot bolts and knife guide arms on the mushroom-headed bolt area of the knife blades are lubricated
- the main switch is inserted and set to „ON“ (see next page)



Fuel gauge

9.2 Filling up fuel

The petrol filter tube is on the right-hand side behind the engine as shown above.

⚠ CAUTION

Hazard	Explosion hazard through inflamed petrol!
Potential consequences	Burns on the body or to the limbs
Evasive/ avoidance actions to be taken	<ul style="list-style-type: none"> ➔ DO NOT refuel the mower when the motor is hot ➔ Use a suitable funnel to fill up the tank



Petrol filler tube

Also follow the safety instructions on pages 5 to 8!

9.3 Adjustable steering bar

The steering bar of the Brielmaier motor mower can be adjusted vertically and horizontally.

For **Hight adjustment**

- Hold the handle of the bar firmly with your left hand
- With your right hand, loosen the handle to the desired adjustment by approx. two turns
- Position the handle in the desired position by shifting it up or down or left or right with your left hand
- As you do this, ensure that the teeth engage with the adjustment mechanism. On no account must the teeth sit on top of each other
- Retighten the handle



steering bar adjustment Lifting eye

For the **lateral adjustment** use the same procedure but instead of loosening the lever, loose the lifting eye with a screwdriver or something similar and after readjusting the steering bar retighten it again.

⚠ CAUTION

Hazard	Potential consequences	Evasive / avoidance actions to be taken
Mower can overturn over the transverse axis when no cutter or other equipment is attached to it	Property damage on the mower or bruises through the contact with the mower	➔ NEVER adjust the steering bar when no device is attached or the mower does not stand stabil!

9.4 Turn on the engine



1. Turn the **throttle (25)** approx. 1 cm down

2. Set the **choke** to the midway position at least and to maximum for a cold start (generally only necessary in extremely cold conditions) only for a short time and set it back to the midway position once the engine starts



Choke



„Maximum“ and „Midway“



„Off / Continuous operation“

From the midway position, set to „continuous operation“ after a maximum of one minute. If the engine is running smoothly, this setting can be maintained. If the engine stops while the choke is in the continuous operation position, revert briefly to the middle position



3. **Dead man's system (5)** note:

do NOT grip the handles (5) while you are starting the engine

4. **Check main switch** (also see pictures down right), if necessary insert into the provided opening and turn it 90° clockwise until it engages

5. **Ignition key (7)** turn as far as it will go in the opening provided

6. **Start button (8)** press and hold it down until the starter motor responds, then release when the motor is running



• **Hint:** First the electronic of the mower is running a self-test. During this procedure the LEDs of the display are flashing irregularly to indicate this

7. **If the engine does not fire:**

- Check the fuel, refill, if necessary and try again with other position of the choke
- Check battery and fuses
- Check main switch



Ignition key 7

Start button 8



Fuel gauge



Main switch

The **main switch** serves the durable disconnection of the electrical circuit to close down the mower (e. g. during wintertime) or as theft protection.

The mower only starts when the main switch is installed and turned.

9.5 Turn off the engine

1. **Start button (8)** press shortly when the mower is running.

All functions, equipment and light turn off. The display expires after approx. 5 seconds.

10. Driving off and mowing

Left hand



Right hand



The best way to familiarise yourself with the basic functions of your mower is to choose an open, flat surface on the first few occasions that you use it.

10.1 Preparation to drive off

- **Clutch-/ brake handle (1)** pull the handle as far as it will go and hold, simultaneously hold the **emergency stop switch (5)**
- Using **button 3** set speed level to „1“. When moving off, do not set a speed higher than „1“ as the mower will be too fast (see instructions page 15)
- **Steering handle (26)** leave it in middle position, so that the mower is set to move forward in a straight line. If you turn the handle to the left or right, the mower will move to the left or right accordingly and the relevant wheel will brake. The reverse process is exactly the same (avoid a too powerful steering action)
- **Make sure no-one is in front of the machine!**
- Now release the **clutch/brake lever (1)** slowly back to its starting position.
This lever adjusts the speed continuously between standstill and maximum and is used for gentle starting and stopping (as you pull the lever, the speed is reduced and the wheels brake simultaneously)

Drive off! The machine is now running!

10.2 Drive

- To change the speed level, press **button 3 and 4** on the left-hand steering handle, as described on page 15
- To steer the machine, operate the **turnable steering handle (26)** as described on page 17
- To go into reverse, press **button (2)** briefly (< 0.3 s) to change the direction of travel permanently and hold it down for longer to shunt.
- Do not operate the machine in reverse above speed level 1!
- The best way to control your speed is by setting the appropriate speed level 1 to 3. Use the micro-adjustment feature (see description on page 12) only when needed, as operating with reduced micro-adjustment increases the heat (the micro-adjustment mechanism produces a programmed loss of power that is converted into heat)
Hint: If **slower speed** is temporarily needed or wanted you can regulate this with the clutch/brake lever (1) very easy, uncomplicated and more flexible than with the micro-adjustment feature.

The „clutch“ of the Brielmaier motor mower is **NOT a mechanical clutch** but a wear-resistant electronically controlled hydraulic.

With the clutch/brake lever (1) you can regulate the speed within each speed level infinitely variable from zero to the maximum of the selected level, even switching the levels while holding the lever is possible.

- When working on steep ground, you can use the trim to pre-programme a particular countermeasure.
To adjust the trim see page 19.

10.3 Behaviour in case of sudden danger!

Four possibilities to stop the machine instantly:

1. **Pull the handle for clutch and brake functions (1) up as far as it will go and hold!** Thus the wheels will brake, the cutter is shut down, the machine stops instantly.
2. **Let go of the emergency stop switch (5)!** Thus the wheels will brake within one second and the cutter is shut down.
3. **Turn off the engine, push button (8) shortly!** The machine stops instantly.
4. **Remove the ignition key (7)!** The machine stops instantly.

Also read the description of the safety features on page 15!

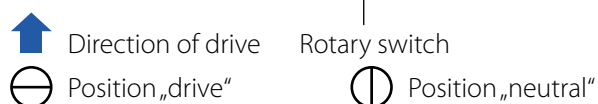
10.4 Moving the machine when the engine is off

To move the mower when the engine is off consider the following:

- At the hydraulic block on the top right corner you find a rotary switch that must be turned 90° to put the machine into neutral.
- **NOTICE** Always turn the rotary switch complete 90°, i.e. either to „drive“ or to „neutral“! Intermediate positions can lead to loss of pressure and overheating oil!
- Unlock the left and right wheel brake cylinders so that the machine can be moved by hand with the engine switched off.

To unlock the left and right wheel brake cylinders:

Remove the plastic cap on the wheel brake cylinder, screw the hexagon screw found in the toolbox into the piston rod of the wheel brake cylinder and pull back the piston rod as far as it will go by turning the hexagon nut.



10.5 Einschalten des Mähwerks



Button „Cutter on / off“ 10



- The cutter bar is switched to „on“ or „off“ using **button 10**. The cutter can be switched on or off either when the mower is moving forward or when it is at a standstill.
- If a proportional valve (pressure or amount of oil) is installed, continuously pressing **button 10** (>1s) and then releasing it, will increase the current and thus the power of the attached equipment, for example a flail mower, over about 6 seconds.
- Proportional valves offer you many individual opportunities on attached equipment. See also page 18.
- The throttle (25) controls the speed of the petrol engine.

Always try to operate at the lowest speed necessary, as this will reduce wear and tear on the equipment and pollution of the environment.

You will be amazed, how much mowing performance you get out of very low revs per minute!



Hint:

All mentioned functions and settings of the mower can be switched and toggled in order or combination as you please. Thanks to the electronic control and the hydraulic layout, the machine can thereby **never be mechanically damaged (100% crash-proof! The machine has got no mechanical idle state)**, thus the mower will never roll away by mistake!

Table proportional pressure relief valve – proportion % versus bar

%	bar	%	bar
100	220	100	250
99	190	99	190
89	180	88	180
78	170	75	170
68	160	65	160
58	150	55	150
48	140	45	140
38	130	35	130
28	120	25	120
18	110	15	110
8	100	5	100
0	90	0	95

Litre capacity x pressure / 550 = kW; 30 l x 220 bar / 550 = 12 kW; 250 bar = 13,6 kW

⚠ CAUTION

Hazard	Potential consequences	Evasive / avoidance actions to be taken
Risk of burns at the hot exhaust pipe!	Skin burns	➡ DO NOT touch the hot exhaust pipe

11.1 Preparation for device replacement

- Park the mower stably at a **flat piece of ground** and switch off the ignition
- Get the second piece of equipment ready nearby



11.2 Remove the current equipment from the machine

- Loosen the locking screw on the support foot and push the support foot down until you can fix it in the upper hole with the locking screw. Tighten firmly
- Remove first the smaller (forerun), then the larger (reflux) hydraulic pipe from the connector
- Lay the pipes down in front of you
- Lift and secure the steering bar in the upper position
- Sicherungsstecker am Verschlußhebel entfernen
- Open the locking lever on mower, taking care to hold the mower firmly with the other hand to prevent it from tipping over (see image to the right)
- Tip the mower forward until the cutter is resting on the ground on the support foot
- Set the steering bar back in its normal working position



11.3 Fit the new equipment to the machine

- Close the locking lever
- Carefully advance towards to the equipment to be attached. Adjust your speed as necessary using the micro-adjustment or the clutch/brake lever
- Move forward until the upper part of the snap-lock on the main machine can be slipped into/onto the quick release coupling on the attachment
- Push the handlebar of the mower down until the lock engages
- Re-secure the locking lever with the spring cotter pin and raise the support foot to the upper position, screw in tightly
- attach the hydraulic pipes, first the larger (reflux), then the smaller one (forerun)

The Brielmaier mower is now ready to operate with the newly-fitted equipment.



CAUTION

Hazard	Potential consequences	Evasive / avoidance actions to be taken
Release of the equipment	Property- and bodily-injuries through uncontrolled rolling equipment	➔ ALWAYS ONLY drive with correctly fixed equipment – ALWAYS check tightness!

11.4 Parking the mower stably without cutting equipment

 **Tip:**

if you lower and fix the steering bar in the lower position, you can also park the mower **stably without the cutting equipment**. (See image to the right)



The Brielmaier motor mower can be equipped with different wheels and tires, which require different material to fasten them, as shown below.

NOTICE

When changing from one type of wheel to another, please especially mind the right dimension of the screws!

12.1 Studded roller wheels

Studded roller wheels, 3-row, 4-row, 5-row



5 screws 12 x 30 mm

12.2 Rubber wheels

Simple standard



5 screws 12 x 25 mm

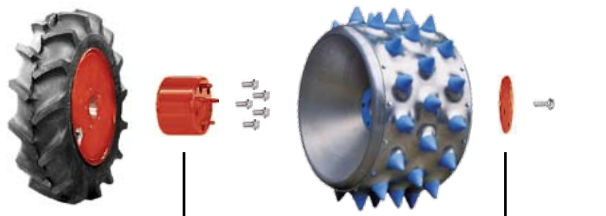
Terra



5 screws 12 x 25 mm

12.3 Set of tires

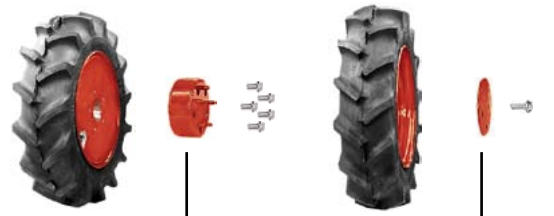
Simple standard + Studded roller wheel



Big distance adaptor
5 screws 12 x 25 mm

Closure disc
1 screw 12 x 30 mm

Twin



Distance adaptor
5 screws 12 x 25 mm

Closure disc
1 screw 12 x 30 mm

12.4 Safety information for changing the wheel:

- Mounting tires and wheels requires sufficient knowledge and proper tools!
- Always mind the running direction of the tires!
- Approximately 5 - 10 working hours after changing the wheels you should check and fasten the screws again!
- Always pay attention, that hubs and flanges are clean and free of dirt or little stones! Otherwise wheels could cant and run irregularly!
- Regularly check the tire pressure! Tire pressure must always be the same left and right!
- Never mount different wheels right and left – always the same wheel on both sides!

CAUTION

Hazard	Potential consequences	Evasive / avoidance actions to be taken
Loss of a wheel during driving	Contusions, bruises, property damage at the machine	➔ ALWAYS make sure that all screws are fastened tight and after 5 - 10 working hours check and fasten the screws again!

The cutter bars of **Brielmaier motor mower** are equipped with high-performance double-knife cutters from ESM. On this page and the following until page 36 you will find safety instructions of ESM as the manufacturer of the cutters.

Please pay particular attention this instructions, because the cutters are especially safety relevant parts of the mower!

This operating instructions and our safety guidelines must have been read and understood by all users. Comply with all of the instructions given herein and ensure that this document is at all times immediately accessible for all users !

If you do not understand any information given in this safety data sheet or the product-specific assembly or operating manual, please contact your local brielmaier dealer or the machine manufacturer directly!

WARNING AND INFORMATION PICTOGRAPHS ON THE IMPLEMENT!

The warning and information pictographs on the implement give important instructions for safe operation. Observing them ensures your safety!

Before taking the implement into operation, ensure that you have read and understood both our safety and operation instructions as well as those of the carrier machine.

Warning - sharp cutter knives! Eliminate malfunctions and carry out work related to maintenance, cleaning, installation or repair, only when the carrier machine is switched off, has come to a complete stop and has been properly secured (refer to operator's manual of the carrier machine!)



INTENDED USE!

This equipment may only be used for standard agricultural, forestry and municipal mowing, as well as for extensive landscape cutting operations. In special cases (refer to the specific operating instructions) operation of the equipment is also allowed when it is in a vertical position. Any use other than the intended is not permitted and the manufacturer accepts no liability for any damages which may thereby be incurred.

The Intended use also includes the adherence to all safety, assembly, disassembly, commissioning, operation and servicing specifications of the manufacturer and the distributors.

GENERAL SAFETY AND ACCIDENT PREVENTION REGULATIONS!

Basic Rules:

All applicable accident prevention regulations as well as all other generally accepted safety, occupational health and road traffic regulations must be observed and followed at all times!

Every person occupied with the operation, assembly, disassembly, commissioning, servicing and repair of the implement is required to have read and understood the complete user's manual and the safety instructions. Operating personnel must be regularly trained and informed about the safe interaction with the implement!

The operator is obliged to regularly check the implement and to operate it only when it is in a completely faultless condition. Should safety equipment become worn or lost, they are to be replaced immediately!!

The implement may not be operated by persons under the age of 18 years! Suitable and close fitted work and protective clothing is to be worn when operating the implement, eliminating malfunctions and carrying out maintenance, cleaning, installation, repair and transportation work. Included are: safety shoes (with non-slip soles), safety glasses, gloves, ear protectors and long trousers!!

When operating the implement near power lines, make sure to keep the following voltage depending safety distances from the line. Under no circumstances may the following safety distances be shortened:
up to 1KV - 1m, over 1 and up to 110 kV - 2 m, between 110 to 220 kV - 3 m, from 220 to 380 kV - 4 m!

In the case of hydraulic drives, it is to be ensured that a pressure-limiting device is fitted to the hydraulic system and that all hydraulic lines are dimensioned according to their expected loading!!

UNDER NO CIRCUMSTANCES may people or heavy objects be carried or transported on the implement!

Unauthorised alternations and/or modifications to the implement nullify all liability by the manufacturer for any subsequent damage that may result!

WORK- AND HAZARD AREA:

It is strictly prohibited to be within the hazard area (D) when the implement (E) is in operation!

The hazard area (D) is dimensioned, dependent on implement type, as follows::

Cutterbars (a =1 m/b =3 m/c=3 m)

Rotary cutting units (a=1 m/b=10 m/c=10 m)

Cutter drives (a=1 m/b=1 m/c=1 m)

A safety distance of 2 m is to be maintained above and below the implement at all times!

Operation of the implement (E) is to be carried out exclusively by a mentally and physically fit individual from the designated operator's position. The operator carries full responsibility towards third parties, in the area to be worked by him (Work Area)!

Never operate the implement if children or pets are within the work area!!

BEFORE STARTING WORK:

Before starting and operation of the implement, check the work area. Pay attention especially to children and pets!

Before starting work, become familiar with the equipment and its relevant control elements, as well as their functions. Above all, learn how to quickly and safely switch off the carrier machine in the event of an emergency.

Confirm that all fitted safety devices are sure to function and in protection mode.

Before starting work, clear all foreign objects from the work area. During operation, keep an eye out for foreign objects at all times and remove them on time!

OPERATION:

During work never leave the designated operator's position and keep the work and hazard area in constant observation!

WORK ONLY IN GOOD LIGHT AND VISIBILITY CONDITIONS.

In the event of damage, immediately switch off the carrier machine and arrange for the implement to be repaired!

In the event of blockages/dead locks, switch off and secure the carrier machine as described by the manufacturer. Because of possible sudden and unexpected movement, remove the cause only with a suitable tool!

Exercise extreme care with moving respectively still moving components. Wait until they have reached a complete standstill before working on them!

After the first operating hours check all screws and nuts and retighten them if necessary.

When working in close proximity to fixed objects such as trees and boundary stones etc., maintain a safe distance to avoid damage to the implement.

MAINTENANCE AND REPAIR WORK:

Maintenance and cleaning work is NOT to be carried out on a running and unsecured carrier machine!!

Eliminate malfunctions and carry out work related to maintenance,

cleaning, installation or repair, only when the carrier machine is switched off, has come to a complete stop and has been properly secured (refer to operator's manual of the carrier machine!)

We would like to bring to your attention that only ESM original spare parts and accessories should be used, as only these have been tested and approved by us. The fitting and/or use of other products may possibly compromise the safety of the machine. We accept no warranty and liability for damages resulting from the use of other than original spare parts and accessories!

If the implement is being used for cutting eatables, all lubricated parts coming in contact with the material to be cut, must be lubricated with food grade lubricants only!

When the maintenance and cleaning work is complete, reattach all safety devices without fail and bring them into protection mode.

Regularly check fastening elements such as screws and nuts etc. for possible loosening and, if necessary, tighten or replace them.

Sharpen the knives only when wearing safety glasses and protective gloves.

Cutting elements from rotating cutting implements may NEVER be straightened or ground. If damaged, they must be exchanged immediately.

Exercise caution when draining hot oil, there is a risk of being burned. Use only the specified quality of the oil. Store oils only in approved containers!

Dispose of oils, fuels, greases and filters separately and only as per statutory requirements!

TRANSPORT/STORAGE:

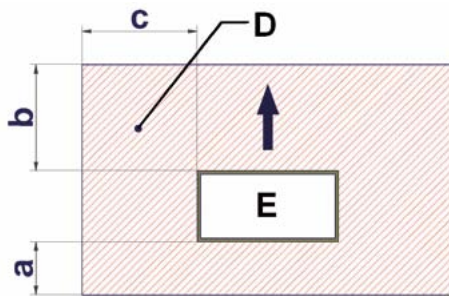
When there is no mowing activity, the supplied knife protection strip must always be fitted and the implement must be stored securely at a suitable location.

Transportation of the implement or its parts is only allowed when using suitable means of transport and fastening equipment.

Fasteners used to lift the implement must be sufficiently dimensioned and not be damaged in any way!!

ATTENTION!

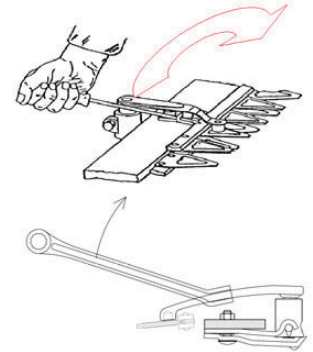
Due to its functional design, all potential risks cannot be eliminated. The attached document "General Safety Instructions" makes reference to these residual risks, for the avoidance of which the operator bears the full responsibility!



Doubleknife Type:	Doubleknife „bidux“
Top knife guide arm	Leafspring
Bottom knife guide arm	Ball bearing guide
Knife section hole spacing	42 mm

ASSEMBLY: REMOVAL AND INSTALLATION OF THE KNIVES WEAR PROTECTIVE GLOVES!

1. Fold up all top knife guide arms, double knife bidux / bidux ES with a screwdriver, double knife "76,2" with ESM special tool (335.3300).
2. If necessary, remove the knife protection strip.
3. Removal of the knives: Take hold of the top knife with both hands and pull out the knife in a slightly tilted frontward position. Lever out the bottom knife with a screwdriver and pull out the knife in upward direction. Important: Do not leave the top guide arms in the raised position for a prolonged period of time = relief for the rubber pivot bearing.
4. Installation in reverse sequence. Important: Ensure that the guiding section studs are inserted into the designated bottom guide arm bushings and that the studs are sufficiently lubricated.
5. Adjust knife guides as described in: Maintenance: Inspection, Adjustment and Cleaning.
6. Attach the knife protection strip.



ASSEMBLY: CUTTERBAR TO DRIVE/MACHINE

The assembly of the cutterbar is only permitted at points agreed between ESM and the respective device manufacturer. Should the installation respectively the drive deviate, then the manufacturer of the completed machinery is responsible for the assembly and operational safety as well as for the provision of comprehensive assembly instructions in his operating manual! Assembly of the Cutterbar is described briefly in the following. The assembly instructions for the respective cutter drive specify the detailed procedure:

Hint: Additional practical Brielmaier tips and hints are following after the ESM- Assembly and user instructions on the pages 39-40!

INTENDED USE

This equipment may only be used for standard agricultural, forestry and municipal mowing, as well as for extensive landscape cutting operations. In special cases (refer to the specific operating instructions) operation of the equipment is also allowed when it is in a vertical position. Any use other than the intended is not permitted and the manufacturer accepts no liability for any damages which may thereby be incurred.

The Intended use also includes the adherence to all safety, assembly, disassembly, commissioning, operation and servicing specifications of the manufacturer and the distributors!

For your own safety, never operate this cutterbar:

- at a rotational speed over 900 rpm on walk - behind machines
- at a rotational speed over 1200 rpm on attached/installed units with a working width up to 3.1 m
- at special working widths and/or applications without prior technical consultation with the manufacturer

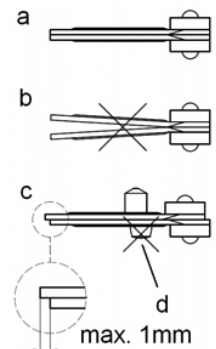
ATTENTION!

Due to its functional design, all potential risks cannot be eliminated. The attached document "General Safety Instructions" makes reference to these residual risks, for the avoidance of which the operator bears the full responsibility!

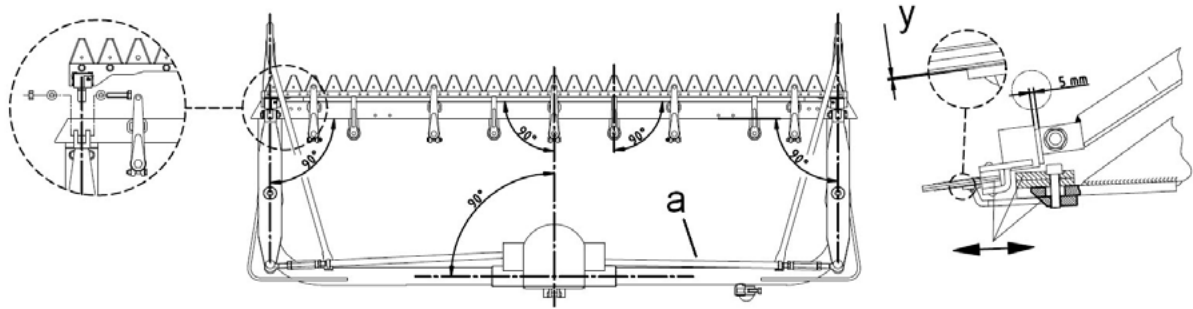
MAINTENANCE: INSPECTION, ADJUSTMENT AND CLEANING

Operational breakdowns caused by inadequate or improper maintenance may lead to high repair costs and long downtimes of the cutterbar. Regular inspections and maintenance to assure operational reliability is therefore essential!!

- Only sharp, well adjusted and ground knives work trouble free
- The knives must always be straight, bent knife sections and knife backs must be straightened
- If there is heavy wear-off or damage to the knives, we recommend replacing the knives
- Damaged, loose or worn out knife sections need to be replaced
- Knife sections must lie on top of one another without any free-play between them (a). Should this not be the case, the knife guides must be straightened or need to be replaced due to heavy wear down
- Guiding sections with worn carrier studs (d) must be replaced on time, since the knife guide arms can no longer function properly with worn carrier studs
- If the knife protrusion is greater than 1 mm the guide arms must be straightened accordingly

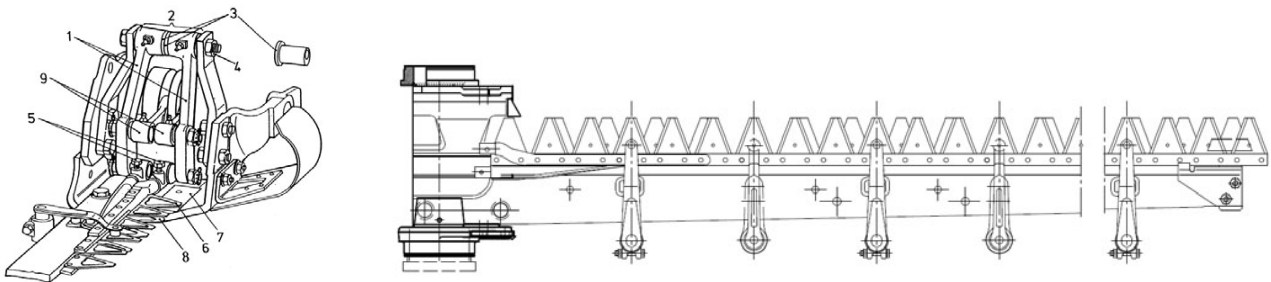


Side Drive: Portal Mower



1. Remove the knife from the cutterbar as previously described
2. Attachment of the cutterbar on both sides of the portal frame (a).
3. When installing the knives (bottom knife and subsequently the top knife), as described above, ensure that main bore of the connecting bolt (Fig. 2/X) is positioned above the axis of the connecting bolt!
4. Fold down the top guide arms (Ensure the correct positioning of the guide bushings to the carrier studs)
5. Adjustment of the knives: The top and bottom knives must glide upon another without any free play between them; the same applies to the bottom knife in conjunction with the right and left sided knife support.
 - a. Align the portal oscillating arms at 90° to the bar back respectively parallel to the portal frame (see Fig. 3).
 - b. To keep the contact pressure of the knives onto the knife support as low as possible, place an insert (c) of approx. $y = 0.3 - 0.5$ mm between the bottom knife (a) and the knife support (b).
 - c. Apply light down pressure to the top knife, tighten the clamp bolt (torque = 125 Nm) of the connecting bolt and remove the insert.
 - d. Then, on the left side, here no insert is used, gently press the knives together and then tighten the clamp bolt (torque = 125 Nm) of the connecting bolt.
6. Check the running characteristics and, if required, attach the safety equipment and the knife protection strip.

Side Drive: Doubleknife - Open pivot Cutter drive



1. Assembly of the cutter unit to the open pivot drive.
2. Fold down the top guide arms (Ensure the correct positioning of the guide bushings to the carrier studs).
3. Adjustment of the knives: The top and bottom knife must glide upon another without any free play between them and the bottom knife must not touch the inner shoe (7).
 - a. Bring the knives into a central position, in this position the ball joints (5) are in alignment.
 - b. Slightly loosen the self-locking nut (4) until the eccentric bushings (3) allow themselves to be turned using a 3 mm pin punch. Rotate the eccentric bushings until the top and bottom knives lie on top of each other without any free-play between them. Ensure that the knives remain straight (no vertical distortion).
 - c. Next firmly tighten the drive arm pivot bearing (2). In this procedure make sure the eccentric bushings (b) are not rotated. The self-locking nuts (4) securing the drive arm pivot bearing (2) are to be replaced after a number of openings (to avoid self loosening of the nut).
 - d. Check if clamp bolts of the ball joints are screwed on tightly. In the following we recommend a short test run and a recheck to the proper position of the knives.
4. Check the running characteristics and, if required, attach the safety equipment and the knife protection strip.

Knife guide:

The pressure of the guide arms to the knives is factory set to 130-160N (13-16kp) and is checked with a spring scale with the knives assembled, directly behind the guide bushing of the guide arms. An adjustment of the pressure is possible, as described below, but seldom necessary. Only after the first 50 hours of operation, or hitting solid obstacles and after repairs does this pressure setting need to be checked.

Design and Pressure Adjustment Double Knife „bidux“

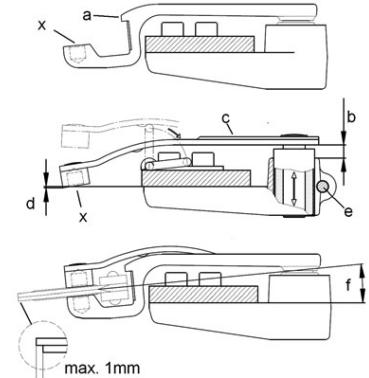
The bottom guide arms (a), which form a unit with its holder and its pivot bearing, determine the correct position of the knife to the bar back respectively the end knife plates.

The top guide arms (c), are built as leaf springs and are mounted in maintenance-free and height-adjustable rubber pivot bearings, which through their position, determine the pressure on the knives.

Adjustments are to be carried out as follows:

Remove the knives and close the guide arms (c). To attain the proper pressure setting (130 -160N (13-16kp), the bottom edge of each individual top guide arm/bushing must stand about 1 mm lower than the bottom edge of the bar back (d).

Should a pressure correction be necessary, loosen the clamp bolts (e) and, using a hammer, bring the guide arm (c) respectively its pivot bearing into the correct higher or lower position. Attention! Retighten the clamp bolts (e).

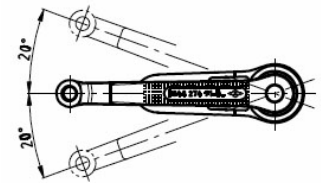


Inspection:

With a regular check (knives being in central position), the clearance (b = min 7.5 mm, max 11mm), the angular measure (f = 5.5°) and the maximal knife protrusion of 1 mm should be verified. If this is not the case, it indicates a deformation/damage to the guide arms (a, c) and/or the guide arm pivot bearings. For easy inspection and straightening of the guide arms refer to the following scaled (1:1) illustration.

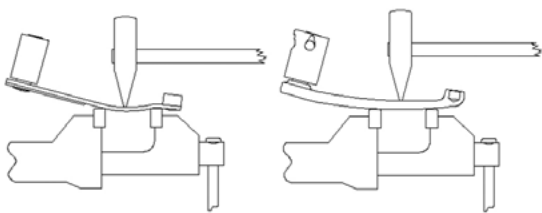
Notice:

- The knife guide should be cleaned regularly and all friction points (x) should be regularly lubricated.
- Pay attention to wear in the guide bushings of the guide arms.
- Attention – do not over turn the bottom guide arm "bidux"! To avoid damage to the built-in pivot bearing/gasket the guide arm may be turned to each side by a max. of 20°.



Straightening the Guide Arms::

If, after the proper adjustment of the knife guides, deviations to the given control measurements are found, than possible the guide arms are bent and need to be straightened. For easy inspection and straightening of the guide arms, follow the scaled illustrations provided in this manual and the method illustrated below.



**Caution! DO NOT hit the hardened frontal parts of the guide arms
Risk of breakage!!**

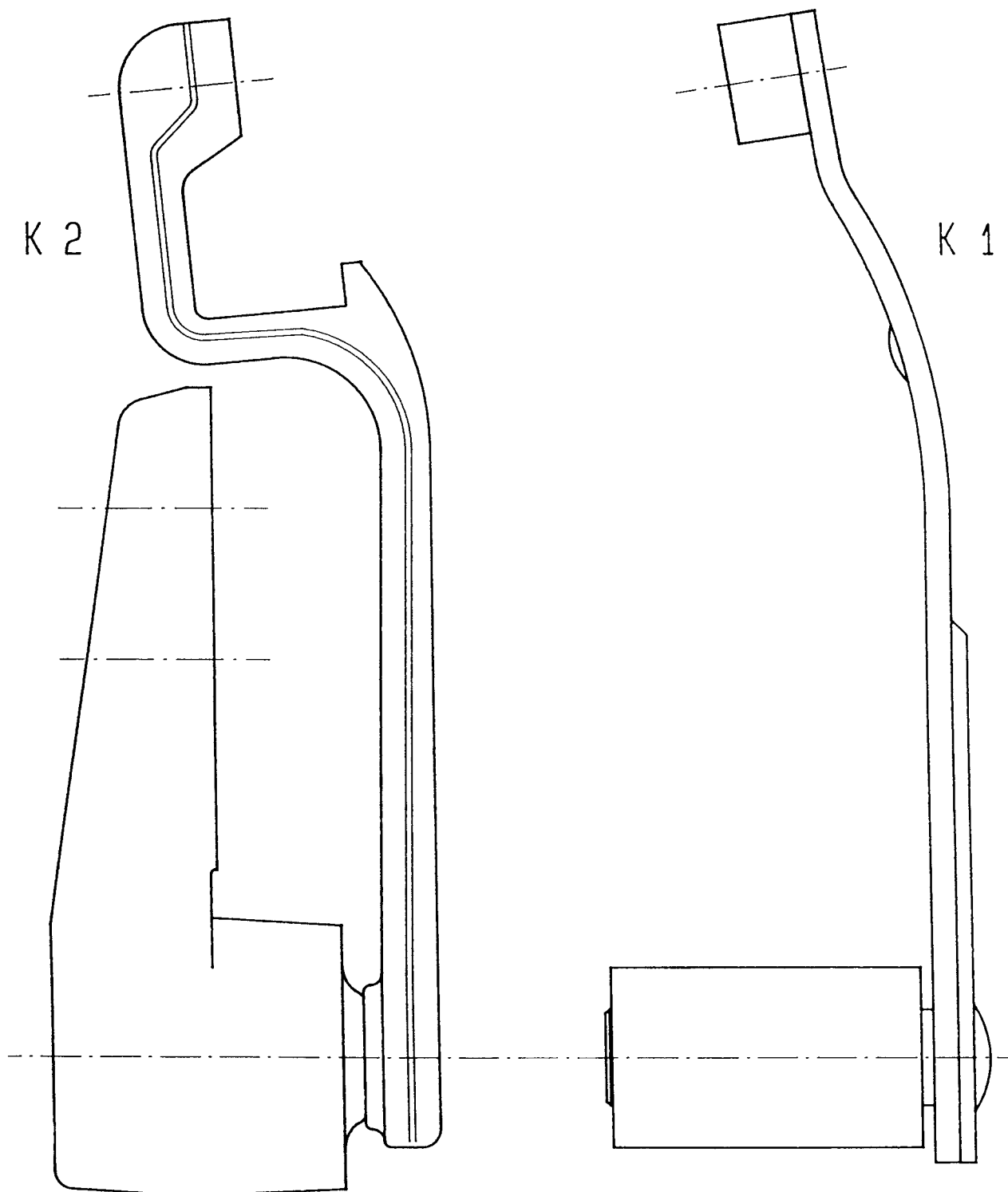
Spare Parts:

We would like to bring to your attention that only ESM original spare parts and accessories should be used, as only these have been tested and approved by us. The fitting and/or use of other products may compromise the function and the safety of the machine. We accept no warranty and liability for damages resulting from the use of other than original spare parts and accessories.

Additional Technical Information

Further technical information, such as spare parts lists and user manuals, are to be found on our Website: www.esm-ept.de. For specific questions please make contact directly with your dealer or the manufacturer.

M 1 : 1



CUTTERBAR:

After every cutting operation, the top knife has to be removed to assure proper cleaning of the cutterbar and all the relevant guiding and friction surfaces. Before the reassembly of the knife, check and repair damaged parts, straighten bent knife sections, sharpen blunt sections and apply lubrication to all relevant guide and frictions surfaces. If no cutting work is to be done for an extended period, remove knife and make sure to store it safely in a dry location.

Knife Head:

Please ensure that there is no excessive free-play between the knife head and the drive element, as too much free-play may cause the knife back to break.

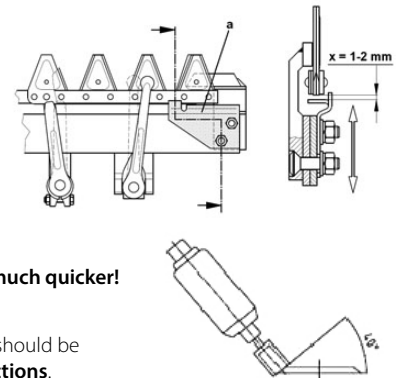
In case of adjustable knife heads, the free-play should be readjusted, after every knife change, to approx. 0.1- 0.2 mm. For non-adjustable knife heads, the appropriate parts have to be replaced if the free-play is greater than 1 mm.

Lubrication should be done with compression-proof grease only! Damaged parts are to be exchanged immediately!

Knife guide plates :

These plates (a) have the task of preventing a jumping and bending of the knives when stones or other foreign objects come into the knife.

For the adjustment of knife guide plates the knife has to be in end of stroke position. The slotted holes on these plates permit an exact adjustment. With correct adjustment of the plates, a gap x of approx. 1-2 mm should be given between knife guide plate (a) and knife back.

**Sharpening of Knives:**

The proper sharpening of the knives is of great importance for clean and trouble-free mowing. The proper sharpening procedure for the knives is described in detail in our guideline: Professional Sharpening of Knives. Sharpen the blades of your double-knife cutterbar at an angle of 40 degrees.

Attention: Do not let the cutting edges overheat, or they will loose their temper and therefore blunt much quicker!

REPLACING SINGLE KNIFE SECTIONS:

Heavily worn or damaged knife sections can be replaced individually. The replacement of individual sections should be carried out by a specialist and/or according to our instructions **Proper Replacement of Individual Knife Sections**.

Maintenance and Lubrication Instructions:

Lubrication should be done with compression-proof grease only! If the implement is being used for cutting eatables, all lubricated parts coming in contact with the material to be cut, must be lubricated with food grade lubricants only!



Hint: Position of the grease nipples on page 41!

Maintenance Instructions	Operating hours / Periods		
	Every 4 h	Every 8 h	Every 5-25 h
Checking of the knife guides		X	
Checking of the knives and the knife head		X	
Check the entire cutterbar for loose and damaged parts, especially components relevant to safety		X	
Grease knife head bearing	X		
Grease carrier bolt and guide bushings		X	
Sharpen Knives			X
Cleaning of the Cutterbar		daily	

Trouble-shooting and Remedy: For quick and easy problem identification, the following table provides a list of the most common problems, its related cause and the remedy needed.

Problem	Cause	Remedy
Cut material becomes stuck between the top and bottom knife	Knives are blunt Knives are not straight Knife Sections are not aligned Bottom guide arms deformed	Replace or sharpen knives Remove and straighten knives Straighten knife sections Straighten guide arms
Section tips of the bottom knife work themselves into the sections of the top knife	Top knife protrudes to far over the bottom knife	Straighten top knife guides
Rattling along whole length of the cutterbar	Guide bushing not sitting on carrier studs	Reposition guide arms/bushings onto carrier studs
Knife sections are not sitting flat on top of each other	Knife sections or knife buckled, Knife back distorted	Check the straightness of the knives, if necessary, straighten the knife sections until the are all aligned
Guide arms/bushings jump off the carrier studs	Guide arms twisted Carrier bushings/studs worn out	Straighten the guide arms Replace bushings /studs
Knife backs break	Excessive rotational speed Excessive play in the knife head Improperly attached knife head Improper adjustment of the knife guides	Reduce rotational speed Check and remove excessive free-play in all the relevant parts Readjust the knife guides

TECHNICAL INFORMATION

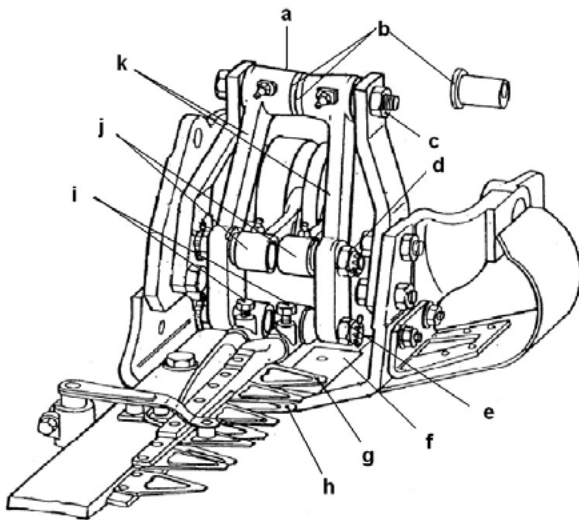
Working width	up to 3,1 (larger on request)	Mowing speed	Up to 11 km/h
Double-stroke rate per min.	up to 1200	Top and bottom knife stroke	76,2 - 124 mm

ASSEMBLY: CUTTER DRIVE TO IMPLEMENT CARRIER

The assembly of the cutter drive is only permitted at points agreed between ESM and the respective device manufacturer. Should the installation respectively the drive deviate, then the manufacturer of the completed machinery is responsible for the assembly and operational safety as well as for the provision of comprehensive assembly instructions in his operating manual!

ASSEMBLY: CUTTER DRIVE TO CUTTERBAR

The correct assembly of the cutterbar to the cutter drive is to be carried out as follows:



1. Remove the knives from the cutterbar as described in the user manual of the cutterbar.
2. Mount the cutterbar to the base plate (f) of the cutter drive using the fasteners provided.
3. When installing the knives (bottom knife (h) followed by the top knife (g)), ensure that the knife head is correctly inserted into the ball joint and mechanically secured with the clamp bolts (i).
4. Fold down the top guide arms (Ensure the correct positioning of the guide bushes to the carrier studs).
5. Adjustment of the knives: The top and bottom knife must glide upon another without any free play between them and the bottom knife (h) must not touch the inner shoe (f).
 - a. Bring the knives into a central position, in this position the ball joints (i) are in alignment
 - b. eccentric bushings until the top and bottom knives lie on top of each other without any free-play between them. Ensure that the knives remain straight (no vertical distortion).
 - c. Next firmly tighten the drive arm pivot bearing (a). In this procedure make sure the eccentric bushings (b) are not rotated. The self-locking nuts (c) securing the drive arm pivot bearing (a) are to be replaced after a number of openings (to avoid self loosening of the nut).
 - d. Check if clamp bolts (i) of the ball joints are screwed on tightly. In the following we recommend a short test run and a recheck to the proper position of the knives.
6. Check the running characteristics and, if required, attach the safety equipment and knife protection strip..

INTENDED USE

This equipment may only be used for standard agricultural, forestry and municipal mowing, as well as for extensive landscape cutting operations. In special cases (refer to the specific operating instructions) operation of the equipment is also allowed when it is in a vertical position. Any use other than the intended is not permitted and the manufacturer accepts no liability for any damages which may thereby be incurred.

The Intended use also includes the adherence to all safety, assembly, disassembly, commissioning, operation and servicing specifications of the manufacturer and the distributors!

For your own safety, never operate this cutter drive with a rotational speed higher than 1200 rpm!

ATTENTION!

Due to its functional design, all potential risks cannot be eliminated. The attached document "General Safety Instructions" makes reference to these residual risks, for the avoidance of which the operator bears the full responsibility!

MAINTENANCE:

Operational breakdowns caused by inadequate or improper maintenance may lead to high repair costs and long downtimes of the cutter drive. Regular inspections and maintenance to assure operational reliability is therefore essential!! The following is to be observed:

- Lubricate only with clean greases, depending on the operating time and temperature, at least every 4-8 operating hours and after each cutting operation or high pressure cleaning. To be lubricated are the following points (1x crankshaft bearing, 2x per bearing housing; 1x per oscillating drive arm; 1 x per ball joint).
- All bearings are to be regularly checked for wear.
- Always ensure the mechanical secure connection of all fasteners (in particular, the oscillating drive arm bearing (a), the connecting rod bearing (j), the ball joint clamp bolts (e), the knife head clamp bolts (i) and the safety equipment).
- Strictly observe the following torque guideline, failure to follow, may lead to breakage of the oscillating drive arms; the nut (c) = 150 Nm, nut (d) = 100-140 Nm, nut (e) = 80 – 100 Nm.
- The self-locking nuts (c) securing the drive arm pivot bearing (a) are to be replaced after a number of openings (to avoid self loosening of the nut)
- We recommend that all repairs are to be carried out by a professional.

SPARE PARTS:

We would like to bring to your attention that only ESM original spare parts and accessories should be used, as only these have been tested and approved by us. The fitting and/or use of other products may compromise the function and the safety of the machine. We accept no warranty and liability for damages resulting from the use of other than original spare parts and accessories.

ADDITIONAL TECHNICAL INFORMATION:

Further technical information, such as spare parts lists and user manuals are to be found on our Website: www.esm-ept.de. For specific questions please make contact directly with your dealer or the manufacturer.

⚠ WARNING

Hazard	Potential consequences	Evasive / avoidance actions to be taken
Limbs can get into the cutters	Cuttings or cutting off fingers	<ul style="list-style-type: none"> ➔ DO NOT work when the engine is running, remove the ignition key! ➔ ALWAYS ensure that the mower is standing flat and secure before starting to work ➔ ALWAYS wear appropriate gloves!

14.1 Removing the upper knife

- Unscrew the clamping bolts on both rocker arms by about half a turn as shown above

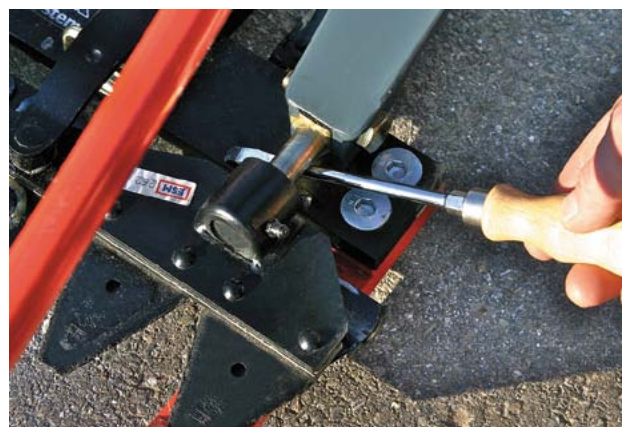
Tip: Fitting and removing can also be done without unscrewing the bolts. The advantages and disadvantages of the respective method is discussed on the following pages



- Insert a screwdriver under the hinged clamp and lift it up
- As you do this, ensure that all knife guides are dis-engaged from the „mushroom-headed“ blade retainer bolts on the knife



- The **upper knife** should now be lying slack and should only be attached to the rocker arm on the left-hand side (in the direction of motion).
 - Now lever the knife off the pivot bolt with a screwdriver as shown at the image on the right
- If the clamping bolts have **not** been unscrewed, this may require more power, but generally is the same process.
- The knife can now be lifted away with care



Wear gloves!



14. Remove and fit in the knives, additional practical Brielmaier tips and hints

14.2 Removing the lower knife

- With safe gloves remove the knife from the mushroom-headed blade retainer bolts and lift a little bit as shown on the image to the right

The **lower knife** should now be lying slack and should only be attached to the rocker arm on the right-hand side (in the direction of motion).

- Now lever the knife off the pivot bolt with a screwdriver as you did with the upper knife, then carefully take away
If the clamping bolts have **not** been unscrewed, this may require more power, but generally is the same process



14.3 Fit in the knives in reverse order lower knife

- First carefully lay the **lower knife** in place, position it correctly and put the knife-head onto the pivot bolt

If the clamping bolts have been unscrewed, the process will be a little bit easier to do, but you carefully have to mind the correct alignment of the knives, to let them smoothly operate again!

If the clamping bolts have NOT been unscrewed, it might be a little bit more difficult, to put the knife-head onto the pivot bolt. Also you will need more power (possibly use a rubber hammer to knock into place). Also mind not to bend the rocker arms!

- Slot the „mushroom-headed“ bolts into the holes on the knife guides



upper knife

- Same procedure as for the lower knife
- Finally press the hinged clamp down into position again with a screwdriver
- Tighten the clamping bolts on the rocker arms on both sides, if they had been unscrewed before – always mind the correct angle and alignment of the knives!



15. Lubrication of the knives and the cutter bar

15.1 Lubricate the knives

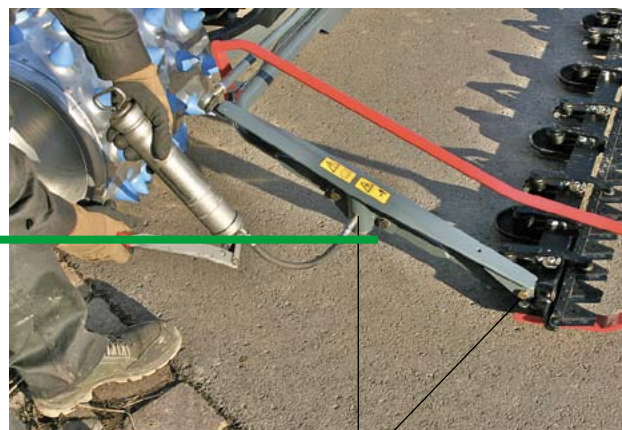
We recommend, to lubricate the knives **each time before mowing**. This reduces wearout and the knives are generally running better.

For the lubrication remove the upper cutter bar, lubricate both knives on the relevant side with grease and assemble the upper knife again.

15.2 Lubrication of cutter bars up to 2,35 m

The cutter of the Brielmaier mower has four grease nipples, which should be lubricated daily with two to three shots from a grease gun when the machine is in use. Two grease nipples are illustrated in the image to the right. The others are situated on the opposite side of the machine.

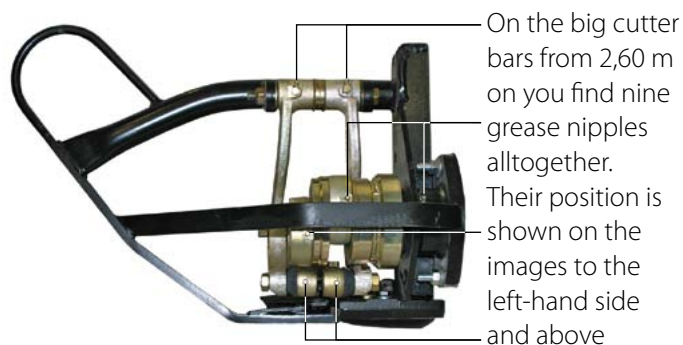
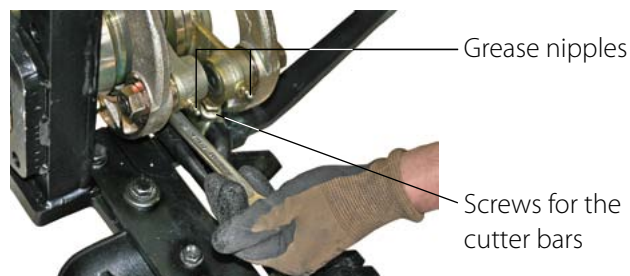
If the device is to be used, lubricate the cutter bars daily with the grease gun. Press the grease gun therefor 2 or 3 times.



Grease nipples

15.3 Lubrication of cutter bars from 2,60 m on

The process generally is the same as for the smaller cutters. But you have to unscrew 2 screws as shown on the image to the right, to be able to remove the knives.



For a safe and smooth operation of your **Brielmaier motor mower**, it is important to regularly pay attention to maintenance and repair.

Please note for all maintenance the security guidelines on the previous pages!

16.1. Maintenance after use – Exchange of worn parts and oil

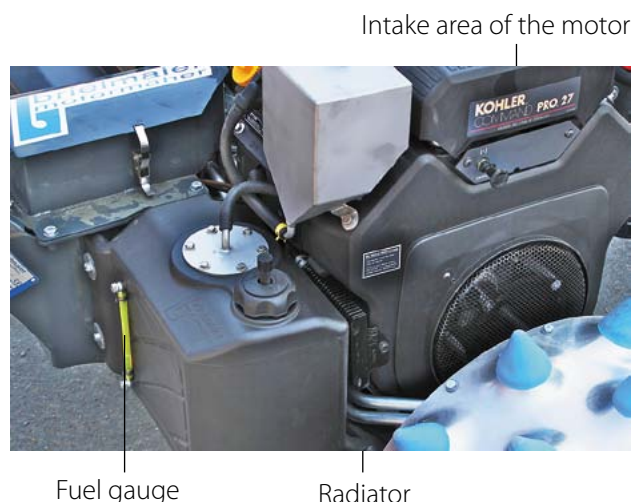
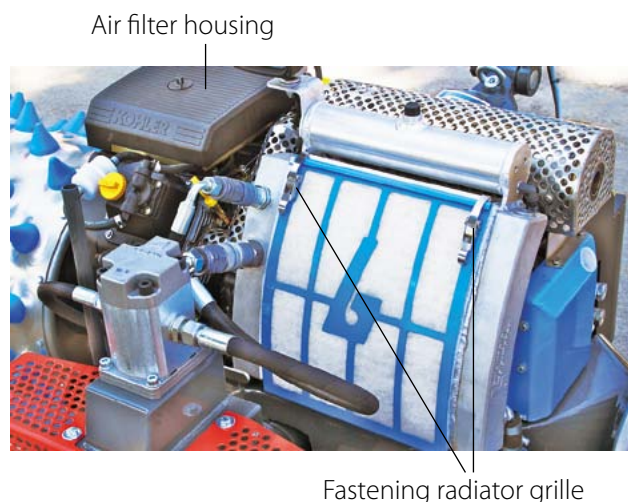
- Remove the radiator grille according to the degree of pollution, shake or blow out mat and reassemble. See also the left image below
- Check the air filter regularly and clean it if necessary, for intensive use hourly. See also page 46 and the left image below
- Check engine oil and hydraulic oil regularly and change the respective filters every 100 hours of operation. See also page 44
- Check the intake area regularly during operation of the mower and the radiator for contamination and clean it if necessary. See also the right image below

16.2. Regular maintenance – daily / before each use

- Before starting work search your **Brielmaier motor mower** for obvious damage or defects! Repair any determined damage immediately!
- Check screws for tightness and tighten if necessary.
- Check amount of fuel and engine oil level, see also the right image below
- Ensure that knives are sharp.
On the knives in particular regard the pages 30 - 41!
- Check and lubricate lubrication points: knife head, rocker arm bearings, knives.
See also the hints on page 41!

NOTICE

Hazard	Potential consequences	Evasive / avoidance actions to be taken
Clogging of the radiator, intake-area, oil cooler, air filter	Engine damage caused by overheating	➔ ALWAYS follow the instructions on this page and keep the mentioned areas clean
Contamination of the knives	Increased wear, poor cutting performance	➔ ALWAYS follow the instructions for care of the knives



17. Disposal

Provide for a safe and environment-friendly disposal of consumables, ancillary materials and replaced parts.

For the disposal have to be obeyed all currently known directives for metals, pastics, electrical and electronical parts, oils, grease and so on. Eventually required dismantling have to be performed by experts. The operator is esponsible for the disposal.

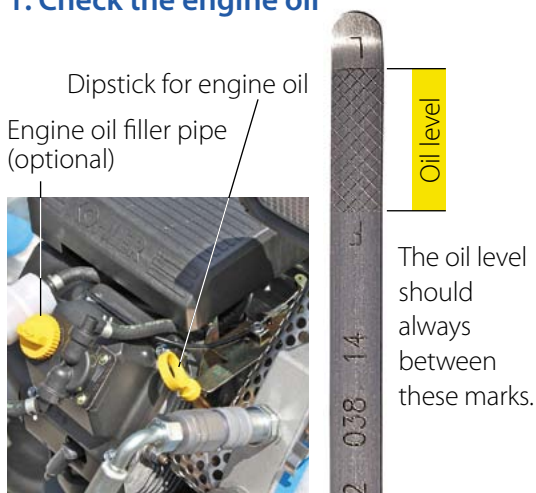
If you want to dispose an complete old mower, please contact us directly.



18. Engine oil and hydraulic oil

18.1 Engine oil

1. Check the engine oil



2. Refill engine oil

The engine oil filler pipe is located here



3. Change of engine oil and filter

The engine oil and the filter should always be changed after 100 operating hours or at least once a year !



18.2 Hydraulic oil

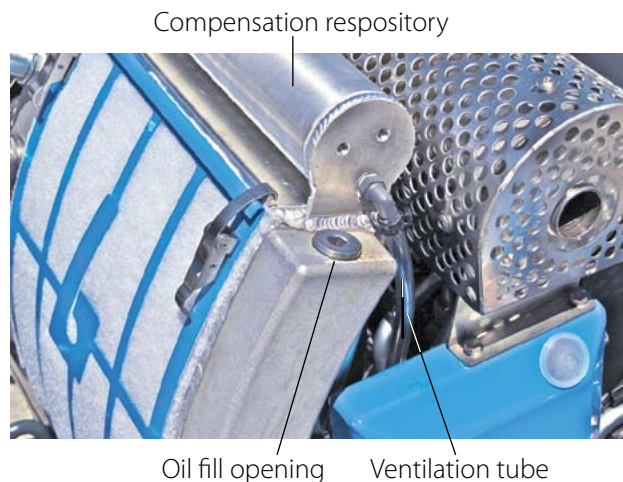
1. Check the hydraulic oil

The oil fill opening for the hydraulic oil and the ventilation tubes are located on the radiator.

- To check the correct hydraulic oil level unscrew the oil fill
- Wait until the oil level is visible in the ventilation tube. This can take a few minutes as the oil must first pass through the filter
- The oil level should reach about the height of the blue box (see dotted line at the image to the right below)

NOTICE

Do not fill oil through the compensation repository as it will enter the hydraulic cycle unfiltered!



2. Refill hydraulic oil

- If the oil level is too low, fill through the oil fill until the correct level is achieved.
- The hydraulic oil filter must be changed after maximum 100 operating hours.
The hydraulic oil (with the filter) must be changed after maximum 200 operating hours.
- Always ventilate the oil cooler after filling!



3. Ventilation of the oil cooler

- First tighten the screw cap of the opening
- Start the engine and let it run on about a third of maximum power
- Now unscrew the cap carefully a quarter- to maximum half-turn, so the air can escape (do not open further than this as oil may flow out unchecked)
- As soon as the oil flows out without bubbles, retighten the cap



4. Changing the hydraulic oil

Drain off the hydraulic oil

- To drain off the hydraulic oil, first unscrew the oil fill, then loosen the screw cap of the draining outlet
- Drain the old oil off completely and dispose of it appropriately
- Tip the machine back gently so that as much old oil as possible is drained off

⚠ CAUTION

Hazard	Risk of burning when oil is hot!
Potential consequences	Risk of burnings on fingers and hands while opening the screw
Evasive/ avoidance actions to be taken	➡ DO NOT change the oil as long as it is hot!

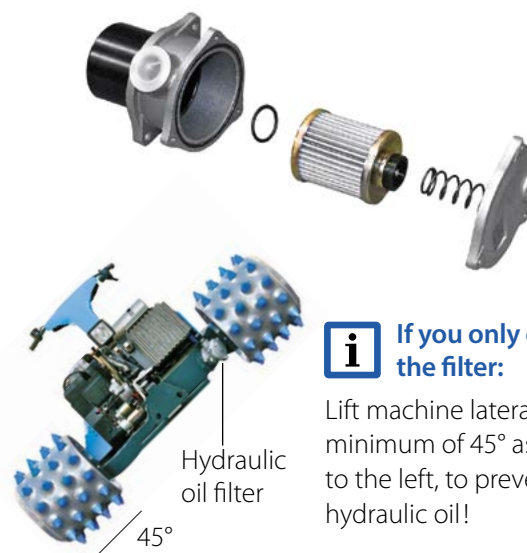


Screw cap of draining outlet

18.3 Oil filter

1. Changing the oil filter

- To change the oil filter, first unscrew the lid of the oil filter case. Next remove the old filter element and insert a new one
- When installing, ensure that the tension spring is correctly positioned
- Screw on outlet nozzle
- Pur in oil
- Run machine, ventilate the oil cooler as described on the left, then carry out a brief check on all functions (driving, steering, cutter on/off). Finally check the oil level again and refill if necessary and ventilate



i If you only change the filter:

Lift machine laterally to a minimum of 45° as shown to the left, to prevent loss of hydraulic oil!

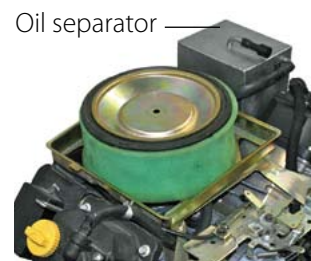
19.1 Air filter

1. Cleaning of the air filter

- If the air filter is dirty or blocked, the service life of the engine can be reduced
- For this reason, clean the filter every 50 hours or more frequently if a large amount of dust collects
- Replace trays after 6 cleans or after one year at the latest

2. Oil separator (special equipment):

When frequently driving steep slopes and full load there often gets oil into the air filter through the ventilation of the crankshaft case. The optional oil separator collects this oil and pumps it back into the engine!



Air filter

19.2 Hydraulic oil temperature

1. Hydraulic oil temperature to high

The oil temperature can heat up too quickly ($>70^{\circ}\text{C}$) for different reasons:

- A dirty radiator – check and clean if necessary!
- Too few oil – check and refill if necessary!
- **Ventilator is not working:**
 - A faulty thermostat or temperature sensor
 - Fuse blown – check and replace if necessary!
 - A faulty cable or plug connection

2. Check fuses



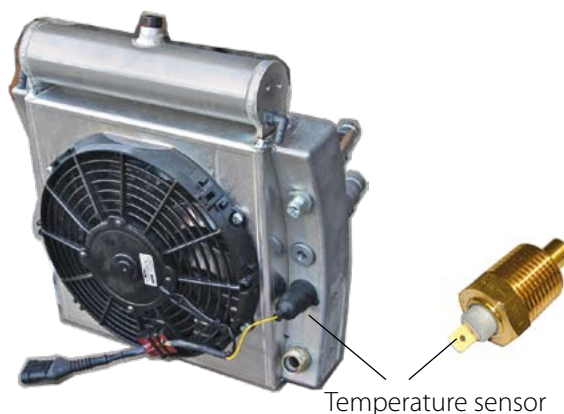
These three fuses are situated in the toolbox under the rubber pad

Ladestecker
10A
(= battery
charger plug)

Lüfter
20A
(Ventilator /
fan)

Platine
20A
(= PC board)

3. Check these connections for firm fit:



Temperature sensor

NOTICE

Only use the required fuses!

When using wrong fuses the electrical system can run into serious damage – fire hazard!

4. Engine cooling system

To ensure the petrol engine remains cool, check regularly that the air-intake area of the engine is clean.

As a preventative measure, check the dirt level around the engine regularly and clean when necessary.



Suction area



Follow the instructions on the battery, in the instruction brochure and in the mower's operating manual



Wear goggles



Keep acid and batteries out of reach of children



Explosion hazard!

The process of charging batteries produces a highly explosive oxyhydrogen mixture. For this reason:



Keep away from fire, sparks, naked flame, cigarettes, pipes, etc:

- avoid any possible production of sparks through the use of cables and electrical equipment!
- avoid short-circuits



Chemical burn hazard: battery acid is highly corrosive. For this reason:

- wear protective gloves and goggles
- do not tip the battery, as acid can escape from the degassing outlets



- If acid gets into eyes, rinse immediately with clean water for several minutes and consult a doctor immediately
- If acid gets onto the skin or clothes, neutralise immediately with an acid neutraliser or soapsuds and rinse generously with plenty of water
- If acid is consumed, consult a doctor immediately!



Warning!

- Do not leave batteries exposed to direct sunlight
- Entladene Batterien können einfrieren, deshalb frostfrei lagern



Disposal

- Take batteries to an appropriate disposal point. Observe the directions under point 1 when transporting batteries. Never dispose of batteries in your household waste!
- Never dispose of batteries in your household waste!

21. Instructions for starter batteries

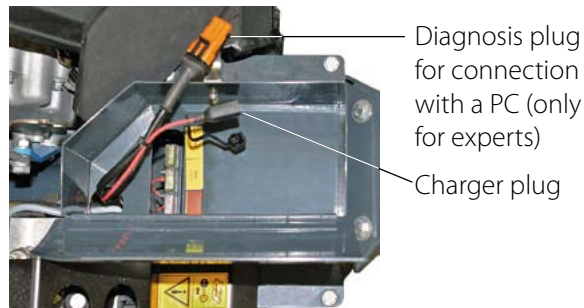
The Brielmaier motor mower is equipped with a 12 V battery.

NOTICE

The battery must only be charged using the charger provided.

21.1. Connecting the charger

- Connect the charger plug with the battery connector plug found in the toolbox, then connect the charger to the power supply.
- **Please follow the instructions in the charger instruction leaflet**



21.2. Removing and installing the battery in the mower

The battery is placed below the toolbox, which has to be removed to get to the battery.

- Before removing or installing the battery, turn off the engine
- Take care to avoid short circuits by tools.
- When removing the battery, disconnect at the negative terminal (-) first, then at the positive terminal (+)
- Before installing the battery, clean the area in the mower where the battery is housed
- Clean the battery poles and terminal posts and lubricate lightly with acid-free grease
- When installing, connect the positive terminal (+) first, then the negative terminal (-). Ensure the terminal posts sit firmly



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Hazard	Potential consequences	Evasive / avoidance actions to be taken
Short-circuit because of incorrect connection of the poles	Damage at the electronic, cable fire	➡ ALLWAYS ensure proper polarity!

21.3. Battery maintenance

- The starter battery of the Brielmaier motor mower does not require special maintenance

21.4. Motor mower out of use for long period

- If the motor mower is not in use for a long period (longer than one month), it is essential that the charger provided is connected to the battery, as described in point 1
- The charger must remain connected until the mower is used again
- **The battery will not be overcharged in this period!**
- **This is the only way to ensure the battery's long service life and that the mower will start when it is next used**

21.5. Jump starting

- Use only standardised jump leads (e.g. DIN 72 553)
- Follow the jump lead instructions
- Connect only to batteries of the same working voltage
- **Turn both engines off, if the jump start is provided by an assisting vehicle!**
- To connect: First connect the positive terminals with each other. Then connect the negative pole of the charged battery with a shiny metallic surface on the mower away from the battery. (Follow the vehicle manufacturer's directions as necessary)
- Start the assisting vehicle, then turn the engine of the mower on for no more than 15 seconds
- **To disconnect:** Remove the cables in reverse order



21.6. Jump starting without direct access to the battery:

For direct access to the battery you have to demount the toolbox. Thus it is easier to use the part of the generator shown below as the positive terminal (remove rubber protector first)



for example ground, terminal (-) Generator, terminal (+)

21.7. Battery not in use

- Charge the battery (see pt. 1) and store it in cool place
- If the battery remains in the mower, remove main switch and keep it safe (see image to the right)

Thereby the electric-circuit will be mechanically disconnected and no part is under electric tension

- Check the state of the charge regularly



Main switch

This point makes no claim to completeness. It will only be shown in our experience, the most common sources of interference.

While troubleshooting also always note the safety instructions!

Troubleshooting and repair		
Problem	Possible Causes	Repair
<ul style="list-style-type: none"> Engine does not start 	<ul style="list-style-type: none"> Check fuel level, oil level, battery level and fuses, main switch 	<ul style="list-style-type: none"> Refuel Refilling oil Charge battery Change fuses Installing main switch
<ul style="list-style-type: none"> Motor switches off on hillsides 	<ul style="list-style-type: none"> Engine oil level to low 	<ul style="list-style-type: none"> Check engine oil, refill if necessary
<ul style="list-style-type: none"> Oil enters the air filter See also page 46! 	<ul style="list-style-type: none"> When frequently driving steep slopes and full load there often gets oil into the air filter through the ventilation of the crankshaft case 	<ul style="list-style-type: none"> Install oil-separator
<ul style="list-style-type: none"> Hydraulic oil temperature rises too much See also page 46! 	<ul style="list-style-type: none"> Check cooler pollution Oil level to low Ventilator failure 	<ul style="list-style-type: none"> Clean cooler, blow out Refill oil Check Ventilator, replace faulty parts
<ul style="list-style-type: none"> Suspected valve or electronic failure See also page 51! 	<ul style="list-style-type: none"> Cables or connectors, faulty or loose 	<ul style="list-style-type: none"> Check cables and connectors, replace if necessary Check error codes read of the LED display on the main board
<ul style="list-style-type: none"> Machine runs extremely slow in a certain speed level See also pages 15 and 24! 	<ul style="list-style-type: none"> The „micro-adjustment“ of the speed level has not been set back, still runs on reduction 	<ul style="list-style-type: none"> Open the „micro-adjustment“ setting of the speed level and set back to maximum
<ul style="list-style-type: none"> Cutting power decreases suddenly, knocking of the cutter bar or other problems with the knife For detailed instructions see page 36! 		

23.1 Suspicion of electronic damage

- After removing the grey cover on the steering bar you can reach the backside of the central display:

The ignition key is held from below by a rubber ring. If this ring is loose or missing the ignition key might wobble and this could cause errors.

- Generally check and fasten all contacts shown on the image to the right if there is a suspicion of electronic damage!**



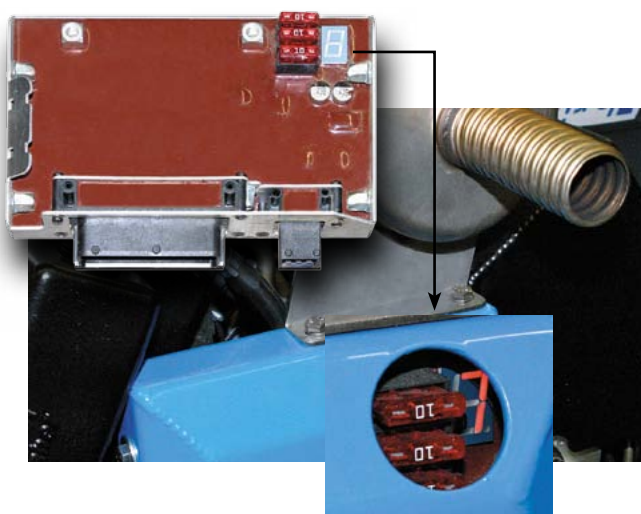
- Hint: The software of the mower is designed the way, that in no case it inadvertently runs off or starts mowing. If in doubt, the machine stops.**



Socket for the ignition key

23.2 Main board and error codes

- In the blue box on the left, mounted behind the radiator to the left of the hydraulic unit, you find the motherboard for the electronic control of the Brielmaier motor mower.
- On the main board there are three fuses to be checked and additionally a 7-segment LED display.
- This display shows status codes and error codes. During normal operation numbers show up to indicate a certain status. You can check this with a jacked up mower and free spinning wheels.
- If the board can track an error, alternately the letter „F“ („Fehler“ is German for error) and one of the codes below are flashing



Status codes:

- 1 Driving straight forward
- 2 Turning left
- 3 Preparing reverse left
- 4 Reverse left
- 5 Leaving reverse left
- 6 Leaving reverse right
- 7 Reverse right
- 8 Preparing reverse right
- 9 Turning right

Error codes:

- F1** Valve 5.1 without current
- F2** Valve 5.2 without current
- F3** Valve 8.1 (left) without current
- F4** Valve 8.2 (right) without current
- F5** Valve for the mower without current
- F6** Temperature sensor broken
- F7** Rake tedder error (Potentiometer error/broken)

Safety feature:

To prevent unintentional driving of the machine, when there is an error in the triggering of the valves, in this case the release valve is switched and the pressure goes to zero. After such an error the machine cannot be driven furthermore. The error must be fixed and the machine must be restarted.



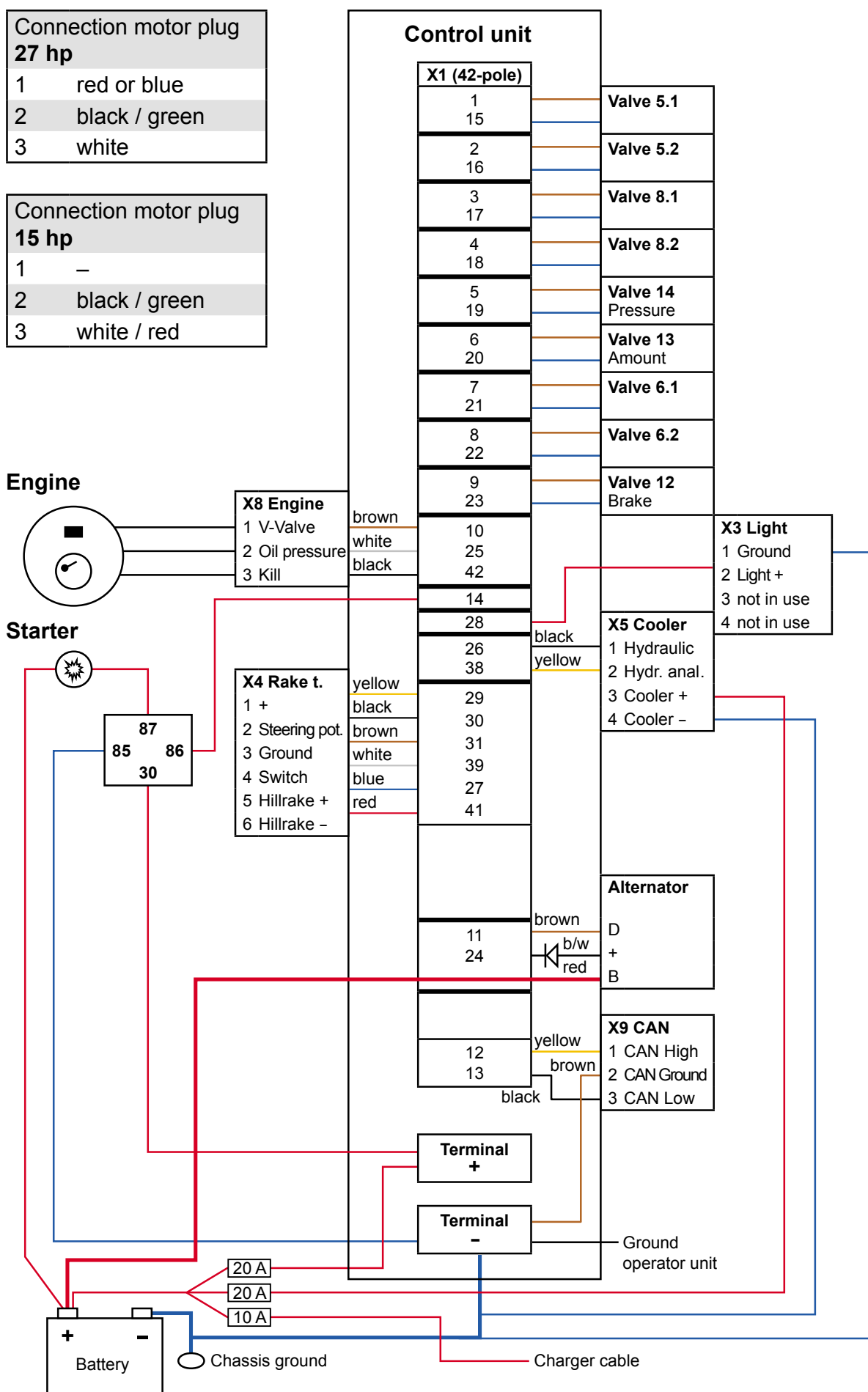
23.3 Parameter setting of the rake tedder

The parameter setting for the rake tedder can only be executed, when the mower is in speed level „0“ and the engine is running. Press and hold button 2 and simultaneously shortly press button 27 (see key controls on page 14). LED 15 should flash now to indicate that you can start the setting. To do so turn the steering bar of the rake tedder several times as far as possible to the left, to the right and to the middle position again. After that press the buttons 2 and 27 again as described above.

LED 15 should go out and you can drive with the rake tedder.



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